

MARINE RECORD

ESTABLISHED 1878.

VOL. XXI. No. 10.

CLEVELAND---MARCH 10, 1898---CHICAGO.

\$2.00 Per Year. 10c. Single Copy

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

PRESIDENT.			
JAMES S. DUNHAM,		Chicago	
VICE PRESIDENTS.			
H. A. Hawgood,	Cleveland	Leander Burdick,	Toledo
David Vance,	Milwaukee	M. J. Cummings,	Oswego
C. W. Elphicke,	Chicago	Alvin Neal,	Port Huron
A. A. Parker,	Detroit	James McBrier,	Erie
G. L. Douglas,	Buffalo	J. H. Westbrook,	Ogdensburg
G. A. Tomlinson,	Duluth	F. W. Gilchrist,	Alpena
Chas. A. Eddy,	Bay City	G. E. Tener,	Fairport
F. J. Firth,	Philadelphia		
SECRETARY.			
CHARLES H. KEEP,		Buffalo	
TREASURER.			
GEORGE P. MCKAY,		Cleveland	
COUNSEL.			
HARVEY D. GOULDER,		Cleveland	
EXECUTIVE COMMITTEE.			
James Corrigan,	Cleveland	William Gerlach,	Cleveland
H. A. Hawgood,	Cleveland	L. C. Waldo,	Detroit
Thos. Wilson,	Cleveland	D. C. Whitney,	Detroit
M. A. Bradley,	Cleveland	W. P. Henry,	Buffalo
John Mitchell,	Cleveland	J. J. H. Brown,	Buffalo
L. M. Bowers,	Cleveland	E. C. Maytham,	Buffalo
H. G. Dalton,	Cleveland	R. P. Fitzgerald,	Milwaukee
W. C. Richardson,	Cleveland	C. W. Elphicke,	Chicago
B. L. Pennington,	Cleveland		
COMMITTEE ON AIDS TO NAVIGATION.			
George P. McKay,	Cleveland	W. M. Egan,	Chicago
W. H. Becker,	Cleveland	W. A. Livingstone,	Detroit
John W. Moore,	Cleveland	J. H. Westbrook,	Ogdensburg
W. A. Hawgood,	Cleveland	A. W. Colton,	Toledo
Thos. Wilson,	Cleveland	James Davidson,	West Bay City
C. E. Benham,	Cleveland	Alvin Neal,	Port Huron
H. Coulby,	Cleveland	M. M. Drake,	Buffalo
J. G. Keith,	Chicago	W. W. Smith,	Sault Ste Marie

ARBITRATION COURTS FOR COLLISION CASES.

There is much to be said in favor of settling cases out of court wherein vessel interests are concerned. Last week testimony was taken in the suit for damages brought by the owners of the steamer *Susquehanna* of the Anchor line against the managers of the steamer *Ira H. Owen*, and the matter now rests entirely with the referee. His decision will be final, such an agreement having been entered into by the two parties to the action.

A large amount of evidence was presented, the taking of testimony having begun before George Clinton, the well-known admiralty lawyer, of Buffalo.

On July 20th last the two steamers came together in a dense fog on Lake Erie, and the action now pending was the result. The *Susquehanna* is the larger boat, being 362 feet long with a tonnage of 2,800, while the *Owen* is but 262 feet in length, with a gross tonnage of 1,753. The larger boat, it is claimed, was damaged to the amount of \$40,000. Well knowing the time which would be consumed if the case were allowed to take its regular course through the courts, a conference of the parties interested was held, and the decision reached to leave the matter to a referee from whose decision there should be no appeal. H. C. Sinclair, of Chicago, is the owner of the *Owen*. His interests have been looked after by Frank Shaw, Esq., of Detroit. Harvey D. Goulder, Esq., of Cleveland, had charge of the case for the defense. It is thought that Mr. Clinton will reserve his decision for several days, as there is a large amount of testimony to be considered.

In this connection we note that the annual report of the Hamburg Chamber of Commerce dealing with the year 1897 contains the following remarks on the foregoing subject:

"The question has been discussed in all directions whether it is not possible to obviate the serious loss of time, trouble and money incurred by shipowners, underwriters and merchants through the trial of actions arising out of collisions at sea before the ordinary tribunals, and whether a salutary change might not be effected if such claims were to be

brought before the court of arbitration composed of nautical experts presided over by a jurist. The acquiescence of the parties interested in the cargo to the reference to an arbitration court of any claims of this kind which might arise could be obtained by means of suitable clauses inserted in bills of lading. It cannot, in fact, be denied that a simplified and shortened process such as is contemplated would prove of great service to all the parties interested, although it is quite evident on the other hand that many and various difficulties would not fail to present themselves in attempting to realize the idea. The greatest obstacle is to be found in the present dispositions of the code of civil procedure with reference to settlements of disputes by arbitration, inasmuch as far too little competence is allowed to arbitration courts to render their intervention really useful in actions arising out of collisions at sea. This difficulty, however, might perhaps be removed by a provision empowering such courts of arbitration to summon witnesses and experts and examine them on oath."

CANADIAN FISHERIES.

According to the annual report of the department of marine and fisheries just published, Canada's fisheries yielded last year \$20,400,000. This yield was the product of 75,000 men, 30,000 of whom were deep sea toilers. The capital invested is placed at \$9,750,000, and 36,600 craft were employed. The principal fish caught and their values follow: Salmon, \$4,000,000; cod, \$3,619,000; herring, \$2,900,000; lobsters, \$2,000,000. There were 41 vessels in the fur seal and Bering sea fisheries and their total catch was 30,000 skins, 15,000 of which were got in Bering sea.

NAVAL SUPPLIES.

The House committee on naval affairs has agreed on items of \$1,000,000 for the purchase of smokeless powder, \$92,000 for the erection of buildings on government ground for the manufacture of smokeless powder with necessary machinery and equipment, and \$60,000 for arming and equipping the naval militia. The latter item is an increase of \$10,000 over the estimates of Secretary Long and provides for the arms, accoutrements, signal outfits, boats and their equipments and the printing of the necessary books of instruction for the naval militia of the several states, under navy department regulations. The item for the purchase of the smokeless powder is identical with the estimate. Several other items of less importance also were passed on.

BOAT OAR MAKERS.

The Association of Boat Oar Manufacturers of the United States was organized last week at a meeting held in Toledo. Representatives were present from the following firms: Moorman Bros., Baton Rouge, La., and Carey, O.; The Stryker Manufacturing Co., Stryker, O.; The West Unity Manufacturing Co., of West Unity, O.; National Boat Oar Co., Chattanooga, Tenn.; The T. P. Wells Co., of Duvals Bluff, Ark.; and the A. H. Wells Co., of Clarendon, Ark.

Officers were chosen as follows: President, J. R. Moorman, of Toledo; vice-president, William Fitzgibbons, of Saranac, Mich.; secretary and treasurer, George Ford, of Burton, O.

The re-organization of the association is due to the work of J. R. Moorman, Toledo, and who has large interests in the boat-oar business. A society existed about ten years ago, but went down because of lack of interest in it. The next meeting will be called by the executive committee. The object of the association is to establish a uniform price and for the purpose of doing away with the ruinous competition that has existed in the past. A slight advance was made in prices, owing to the scarcity of ash timber and the consequent increased cost of manufacturing oars.

TERMS OF STEAM ENGINE EFFICIENCY.

A committee of the British Institution of Civil Engineers, appointed a year or more ago, says Science, have reported the following recommendations on steam engine efficiency, and they have been adopted by the council:

(1) That the statement of the economy of a steam engine in terms of pounds of feed water per indicated horse-power per hour is undesirable.

(2) That for all purposes except those of a scientific nature it is desirable to state the economy of a steam engine in terms of the thermal units required per indicated horse-power (or per minute), and, if possible, the thermal units required for brake horse-power should be given also.

(3) That for scientific purposes the thermal units that would be required by a perfect steam engine, working under the same conditions as the actual engine, should also be stated.

The proposed method of statement is applicable to engines using superheated steam as well as to those using saturated steam and the objection to the use of pounds of feed water, which contains more or less thermal units according to conditions, is obviated, while there is no more practical difficulty in obtaining the thermal units per indicated horse-power per hour than there is in arriving at the pounds of feed water.

For scientific purposes the difference in the thermal units per indicated horse-power required by the perfect steam engine and by the actual engine shows the loss due to imperfections in the actual engine.

A further great advantage of the proposal is that the ambiguous term "efficiency" is not required.

TEMPERING STEEL IN THE OLDEN TIME.

In a lecture before the British Association, a few years ago, Prof. Roberts Austen quoted some curious old recipes for making liquids to be used in hardening steel, such as: "Take snayles and first draw water of a red die of which water being taken on the first two months of harvest when it rains; boil it with snayles; then take your iron red-hot, and quench it therein, and it shall be hard as steel." Another recommends "the blood of a man 30 years of age, of a sanguine complexion, being of merry nature and pleasant." The workman is further told that, if "he takes the juice of water of common beans, and quenches the iron or steel in it, it will be soft as lead."

At a meeting held last month at the Royal Institution a lecture was delivered by Dr. J. H. Gladstone, on the "Metals used by the Great Nations of Antiquity," in which he traced the growth of the metal working arts from the earliest periods of history. In connection with the occasion a conversation took place the same evening. At this a number of interesting examples of alloys and rare metals was on view, including aluminium from the British Aluminium Company, the Atlas Anti-Friction Metal, Delta Metal, and rare metals from the firm of Messrs. Johnson, Matthey and Co., including a specimen of uranium, valued at \$35,000.

CLYDE SHIPBUILDING.

The output of Clyde shipbuilding for the first month of the year amounted to 15,000 tons, and is a fair average of the corresponding month for the past ten years, the tonnage fluctuating from 10,000 to 17,000 tons.

The contracts booked for January amounted to about 40,000 tons, and together with the work in hand make a total of 420,000 tons distributed among the various firms.

A general resumption of work was made on the 2nd of February when about 75 per cent. of the "locked-out" workmen were taken back, the remainder finding places a few days after, as things were got into working order again. A number of the yards are arranging for a night shift, and some have already gone on full time in order to get rid of their accumulated orders.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

The Huron line steamers are now running from the Northern Michigan Trans. Co.'s dock.

The schooner Maggie Dall is on the Independent Tug Line's floating dry dock receiving some repairs and bottom calking.

Fred Otto, chief engineer of the steamer H. Luella Worthington, arrived here Tuesday morning from Manistee to fit out the machinery of that steamer.

Capt. Jones, of the steamer Iroquois; Capt. Call, of the steamer William Chisholm, and Capt. Stratton, of the steamer J. J. McWilliams, have arrived here.

The Dunham Towing & Wrecking Co. towed the wooden steamer W. H. Gratwick to Armour's C elevator and the steamer D. C. Whitney to Armour's D elevator to load grain.

George E. Bond, who has been in the employ of the Northern Michigan Trans. Co. for 10 years, has been appointed traveling freight agent for the Canada Atlantic Transit Co.

Edward Smith, of Buffalo; W. C. Richardson, of Cleveland; A. A. and B. W. Parker, C. A. Chamberlain and Capt. Joseph Nicholson, master of the House of Correction, Detroit, have recently visited this city.

The Independent Tug Line towed the steamer G. G. Hadley to South Chicago to load grain, the steamer Tuscarora from the Chicago Ship Building Co.'s shipyard to Chicago, the barge Ashland to the Iona elevator to load grain.

The Chicago Ship Building Co. have contracted with the Minnesota Steamship Co. to build a steel barge 376 feet long, 48 feet beam and 26 feet molded depth. She will have a modern outfit and will come out next August.

The Goodrich Trans. Co.'s steamer Georgia went out of Burger & Burger's dry dock on Tuesday. The company's steamer Indiana will go into commission again this week. She has received a new cylinder to her engine and a general overhauling at Burger & Burger's shipyard at Manitowoc.

The steel steamer William R. Linn was successfully launched at the Chicago Ship Building Co.'s shipyard last Saturday afternoon in the presence of a large number of invited guests and spectators. Miss Mabel Linn, daughter of W. R. Linn, christened and named the steamer. The principal dimensions of the W. R. Linn were published in last week's issue.

The new firm of D. R. Parsons & Co., vessel and insurance agents, have opened up business at 1 S. Franklin street, room 5, where they intend to make a specialty of procuring tonnage for the lumber trade. Capt. D. R. Parsons, the principal of the firm, hails from Detroit, and is a son of Capt. Joseph Parsons, master and owner of the schooner Ganges. He is a very enterprising, energetic young man and anticipates establishing a good business in the near future.

Mr. George Uhler, national president of the M. E. B. A., entertained the members of Lodge 4 and many visitors at Chicago association rooms last Friday evening. He gave his hearers a concise history of the M. E. B. A. from the time it started in 1875 up to the present time. He enumerated many of the good things accomplished by the association, amongst which were those of getting the engineers' license fees of \$10 annually and the hospital fees of 40 cents per month abolished. He also spoke of the beneficial aid afforded to several members of the association who had been injured, and to the wives and families of some who had lost their lives whilst following their calling. He earnestly requested those engineers present who were not members of the association to join at once and strengthen the association in their endeavors to do much more good work in the future. Mr. Uhler's able address caused much enthusiasm among those present and a vote of thanks was unanimously accorded him. Several new members joined the association at the close of the meeting.

The Canada Atlantic Transit Company have chartered the five steel steamers of the Menominee Transit Co.'s fleet comprising the Britain, German, Grecian, Roman and Saxon. It is the intention of the company to operate three of the steamers between Chicago and Parry Sound and two between Duluth and Parry Sound in connection with the Canada and Atlantic Railway Co. The company have secured a piece of property on the north side of the Main river at this port, between the Ogdensburg Trans. Co.'s and the Lehigh Valley Trans. Co.'s docks, with 425 feet dock frontage upon which they are building a freight-house which will contain 50,000 feet of floor space. The company will operate the line into Milwaukee, having secured dock facilities from the C. M. & St. P. R. R. At Parry Sound the company have an elevator now ready for the handling of grain, with a capacity of about 1,250,000 bushels and will have a warehouse 600 feet long by 80 feet wide, also a flour-house of the same dimensions, together with 2,500 feet dockage accommodation on a 22 foot water line. They are also building at Coteau Landing on the Soulange's canal a transfer elevator of 500,000 bushels capacity which will handle 240 carloads a day, also warehouses and docks of sufficient dimensions for the handling of flour and package freight, their idea being to transfer their grain and package

freight to Montreal and deliver alongside of the ocean vessels in Montreal harbor. Freight for New England points will be shipped to Swanton, Vt., and there delivered to any one of half a dozen railways that diverge to Boston, Portland, St. John, N. B., and other east shore points. At Valleyfield, just across the American border, the New York Central crosses the Canada-Atlantic line and puts New York among the possibilities for the new line. The new route seems to offer several advantages. Its water haul is considerably shorter than that of the lines to Buffalo and the rail haul between Parry Sound and Montreal is much shorter than from Buffalo to the Atlantic. Ocean rates from Montreal are said to be about 1 cent lower than the usual rates from New York. The steamers chartered by the company were built for the coal and ore trade; they will be fitted up for the grain trade by the Menominee Transit Co., before they are turned over to the line. Gangways will be put in and they will be furnished with hoisting engines and other appliances for handling package freight. The Canada and Atlantic Transit Co. have also chartered the new steamer Wm. R. Linn for her first cargo of grain and intend to load her down as deep as the water will allow her to get out of South Chicago, as there is 22 feet at Parry Sound, their object being to demonstrate the fact to those having vessel interests, that they can take care of any vessel afloat on the lakes. The elevator at Parry Sound is equipped with one of the largest marine legs on the lakes patterned after the Export elevator at Buffalo, which has a capacity of 19,000 bushels of oats an hour.

DETROIT.

Special Correspondence to The Marine Record.

W. H. Gratwick has transferred a 24-100 interest in the steamer W. H. Gratwick to F. W. Wheeler & Co. of West Bay City.

Sealed proposals for dredging work along the east shore of Lake Michigan will be received by Capt. Townsend, in charge of the district, until March 30th.

General Manager Hays of the Grand Trunk railway heads the syndicate which is applying to the Dominion parliament for the right to bridge the Detroit river between Windsor and Detroit.

Word comes from Colchester that this end of Lake Erie is still covered with ice and calm weather keeps it stationary, but it is wasting fast. The ice is not as heavy as it usually is at this time of the year and a heavy west wind would soon drive it through the passage and leave the channel clear from Bar Point to "the dummy" Point Pelee.

The new C. & B. line boat City of Erie has been towed from Wyandotte to the Detroit yards of her builders where she will receive her finishing work, equipment, etc. It is a long expensive job fitting up a first class passenger steamer, and it will no doubt take a couple of months to put the Erie in shape to go on her route between Cleveland and Buffalo.

The Detroit Sheet Metal and Brass Works besides carrying a large stock of high classed brass marine hardware for the entire equipment of all classes of vessels, or from a yacht to a large passenger steamer, make a specialty of the manufacture of the Clark patent life-raft built of selected wood and fitted with strong galvanized iron tanks as approved by and according to the rules of the Board of Supervising Inspectors of Steamboats. Rafts having a capacity of from four to forty persons are always kept on hand while other sizes and proportions are made to order.

An order to take effect next July has been issued by Assistant Secretary of the Treasury Spaulding to do away with figuring out the fractional records of the tonnage of vessels. This order was issued in consequence of a complaint from the Detroit Dry Dock Co. with reference to the measurement of two vessels belonging to the company of exactly similar build, but between which the official measurer made a difference of several tons. The company also complained of the necessity of having to stamp fractions of a ton on the main beams of ships. When the fraction exceeds half a ton it is probable that one ton will be added, when less, cancelled. This, of course, will not interfere with exact measurements being worked out as formerly.

SHEBOYGAN.

Special Correspondence to the Marine Record.

There is but little floating ice in the lake at the present time.

The life-saving station will open up here at noon on April 1.

Work of repair started yesterday on many of the winter fleet in the river.

There is quite a large cave-in along the dock of the Crocker Chair Co. factory A.

I would still like to know whether the steamer Morman was loaded or light when she was sunk on Lake Huron three years ago by the Canadian steamer Jack.

We are enjoying regular spring weather here this week and the sailors are getting anxious to fit out their respective boats, although they don't expect to get "under way" much before April 15.

Repairs are being made on the dredge of the Sheboygan Dredge and Dock Co., among them being a new crane. The dredge company expect to begin work in the river early, at least such is necessary.

Capt. Wm. Long, of this place, has in his possession an old rocking chair which he brought with him from Cleveland to Chicago on the steamer Mandota in 1852, which makes the old relic 46 years old.

The ice is still piled up pretty well along the west shore here, but is diminishing every day now. Another sign of spring on Lake Michigan that we are enjoying this month is the light haze that is visible on the lake nearly every morning.

Poetry seems to be quite the thing for the RECORD this winter. A retired lake captain here has a piece of poetry which he composed, entitled, "The Old Plaid Shawl," but as it is not nautical desires not to have it published in the RECORD, though the RECORD may be in receipt of a piece of his poetry in the near future.

There has been talk here this winter about the Klondike among sailors. Now that spring is drawing near they have very little to say, for not one of them has volunteered to go. Sheboygan has one man on the way there who has already crossed the Chilcoot Pass. And will have another this spring when Mr. J. F. Kausler will go. Neither are sailors.

I wish to make a slight correction which occurred in the "Special Correspondence at Detroit" in issue of the RECORD of March 3rd, in regard to the dimensions of the steamer Wm. Chisholm. The dimensions of the Chisholm were given 1,581 tons burden, 2,546 feet long and 19 feet deep. The correct dimensions of the Wm. Chisholm are gross tonnage, 1,581 tons; length over all, 246 feet; beam, 36 feet; built in 1884.

The committee of citizens who journeyed to Washington last week have returned home, save Gus Huette who will stop in Chicago to transact some business of importance. Mr. Thayer, who went as the representative of the C. & N. W. Ry. Co., and who has wide experience in public matters, was seen upon his return and expressed himself as feeling confident that the committee's visit would be productive of much good, and he believes a general appropriation will be made, which will give Sheboygan a flattering amount. The local committee were accorded a respectful hearing and the delegation addressed the committee on rivers and harbors.

DULUTH.

Special Correspondence to The Marine Record.

Captain Flynn is fitting out the steamer Stewart. She will be used in the south shore trade.

The barges Belle Cross and Napoleon will be used for transporting lumber from Bayfield to Lake Linden.

The tug Pathfinder has been chartered by James McGee for the season. She will be engaged in log towing on the south shore.

The tug Effie L., of the Inman fleet, has been sold to the Duluth Dock & Dredging Co. The consideration is said to have been \$2,000.

Capt. McKenzie, keeper of the life-saving station, is still under the weather, but his friends hope that he will be so far recovered as to take charge of the station at the early opening of navigation.

The ice field opposite this port is covered by snow-water as a result of the melting weather. The ice men say that unless the weather changes to colder within a very few days the ice will be honey-combed and unfit for use.

Capt. Robert Kent, who for the last four years has been in the employ of the Inman Tug Co., and who for the past two seasons has been master of the tug Record, will this season sail the tug Raber, which will be engaged in log towing for the Cranberry Lumber Co.

The opening of navigation seems to be stealing around here in a rather premature way. The engineer of the Queen City is at work on the machinery of that big craft and the W. H. Gilbert is also having her engines overhauled and put in working order for an early start.

Lumbermen are greatly obstructed in closing their winter's work, the heaviest for five years, by lack of snow, and indications point to many million feet of logs being hung up in the woods and on the drives. The ice on the Lake Superior bays is very rotten and an exceptionally early opening of navigation is assured.

Bids were opened this week for raising the old hulk of the Winnipeg. The work will be done by the government and the bids opened at the office of Major Clinton B. Sears. The remains of the burned steamer lie in the path of projected harbor improvement and they will be taken out and allowed to sink in not less than ten fathoms of water.

During the coming season the Great Northern Transit Co. and the North Shore Navigation Co. (Canadian) will place the steamers City of Collingwood and Majestic on the route between Collingwood, Owen Sound and Duluth. The vessels will be operated under the name of the Georgian Bay & Lake Superior Steamboat line. The vessels will call at Sault Ste. Marie, Port Arthur and Fort William, and at Mackinaw during July and August.

It is understood that the survey of lake vessels in winter quarters at Duluth is for the new Inland Lloyd's register, which will be completed soon. In the past the work of placing hull and cargo insurance has been well under way before March 1, but this year there is unusual delay. It is believed that both syndicates, each publishing registers, will wait as long as they can so as to find out what each other are doing or have done.

BUFFALO.

Special Correspondence to the Marine Record.

Chief Engineer Louis Sebastian has arrived here from Toledo to fit out the engines of the Kearsarge.

Capt. Theodore F. Jewell, U. S. N., inspector of the 10th light-house district with headquarters at this port, will be succeeded in a few days by Commander F. Hanford, U. S. N. Capt., late Commander Jewell has received his promotion, and will probably be detailed to sea duty following his year of shore detail.

There is still close to half a million bushels of grain afloat in the harbor from last fall. The fleet includes the Presley, Italia, Stone, Bartlett, Colgate and whaleback barges 133 and 134. The 134 is discharging slowly and not using the steam shovels, a rate on them not having been established under the new contract.

Mr. John Dewire, Montreal, visited Kingston, Ont., for the purpose of arranging for repairs to the steamer Rosedale. Work will begin at once. Mr. Reid says the vessel is owned by himself and Mr. Benson, of Montreal. It will be decided whether a Kingston or a Montreal concern will be awarded the contract for repairs. Capt. Ewart will again sail the Rosedale next season.

Marine engineers make lengthy charters now and again. This week we have had the well-known engineer of the Thos. Wilson taking under convoy a fair young consort sailing from this port and if he is not a proud commodore then none are made. Saturday, March 5, was a red letter day for Mr. A. J. Smith and the same evening he got under way with his consort and proceeded on to Marine City where, I learn, they secured safe moorings. Much of the anticipated safety and pleasure of the life-long cruise may perhaps be attributed to the fact that the consort has been once before under convoy and therefore knows the ropes and how to handle the steering apparatus so as to keep clear of the buoys, reefs, shoals and quicksands which are liable to be met with in so lengthy and adventurous a voyage.

The United States Court of Appeals has just found a schooner entirely to blame for a collision with a steamer in which both were seriously injured. The vessels are the Union liner Rochester and the schooner A. Mosher, of Chicago, which collided in that city Nov. 4, 1895. The Mosher was coming out of port and the crew was setting sail, so that the master was often unable to see ahead while at the wheel, and several times went to the side to get a better view. This condition of things, together with the constant yawing of the schooner on account of the wind being abaft the beam, is held to be ample excuse for the steamer's failure to keep out of the schooner's way. The decision was wholly unexpected. The Union line offered to stand half the damages on the start, but the owner of the Mosher would hear to nothing but the whole. The damage to the Rochester was about \$2,000.

CLEVELAND.

Special Correspondence to The Marine Record.

The steamers which will be placed on the Cleveland-Toledo route will not start until April 1.

Mr. John Gordon, of Buffalo, manager of the Great Lakes Steamship Co., was in the city Monday attending to business regarding boats for his line.

B. F. Massen, formerly city passenger agent of the Detroit & Cleveland line at Toledo, has been transferred to Cleveland, to assist General Agent D. C. McIntyre.

Capt. John Kirby, one of the oldest shipmasters and pilots on the lakes, is still hale and hearty, and residing, as he has done for the past half century, on the west side. Capt. Murch, who is still in active service, is also a west sider.

Judge Ricks, of the United States district court, delivered the decision this week in the case of the Lake Superior Iron Co., owners of the steamer Choctaw vs. the owners of the steamer L. C. Waldo, to the effect that the master of the Waldo was responsible for the damage done the Choctaw, which was run into by the Waldo in the Hay Lake channel. H. F. Carleton was appointed by the court to fix the amount of the damages.

Ed. Masterson, who was chief steward on the steamer City of Cleveland of the D. & C. line last season, has accepted a position with the Georgian Bay-Lake Superior Steamboat Co. as chief steward on the steamer Majestic. Ed. Masterson was well liked on the D. & C. line boat as a thoroughly capable chief steward, but as he had sailed for years on the upper lake route it is likely that he will feel more at home in filling his new appointment.

Frank Chittenden Osborn was elected president of the Civil Engineers' Club at the annual meeting Tuesday evening. Other officers elected were as follows: Vice president, Samuel T. Wellman; secretary, William H. Searles; treasurer, Walter Miller; librarian, William E. Reed; directors for one year, Joseph R. Oldham, Samuel Dodd; directors for two years, Ralph A. Harmon, Charles W. Hopkinson. The construction of the Cleveland Ship Building Co.'s dry dock at Lorain was explained by Mr. James Ritchie.

The labor trouble among the former employees at the yards of the Globe Iron Works Co. has been settled among themselves and the men are again seeking work at the employers' terms. At no time did Manager Newman admit that the operation of the shipyard was crippled on account of a lack of labor and it seems that he has been able to secure all the workmen necessary, inasmuch as places can now only be found for about six or eight chippers, later, perhaps, more of the men can be given work at riveting.

PORT HURON.

Special Correspondence to the Marine Record.

Mr. Simon Langell, the shipbuilder, is very sick at his home in St. Clair, Mich.

The shipmasters will hold their last party of the season this week at their rooms in the Jenkinson block.

Work on the Price new boat at Marine City, building at Anderson's yard, is being rushed as fast as possible.

Capt. Harry Warwick is in the city in the interests of Howard H. Baker & Co., ship chandlers, Buffalo. Harry is well liked by the sailing community and can figure on the best end if their trade favors this vicinity. He is taking in all the river ports.

Work is progressing rapidly on the new tug at the yard of the Jenks' Ship Building Co. on Black river. The frames are all up and the planking has been commenced. On Saturday afternoon O. L. Jenks, president of the Jenks' Ship-Building Co., said to the Times: "Yes, it is true that we are going to establish a steel ship building plant. The tools are being manufactured at the Phoenix Iron Works. We have not exactly decided whether the plant will be located on Black river or St. Clair river. We propose to be able to build any sized steel vessel."

As advertised, the sale of the barge Levi Rawson occurred at Port Huron March 1st. The Rawson belonged to G. Francis, of Bay City, and was sold on a salvage claim, libel proceedings having been begun by Edmund Hall, of Port Huron. The Rawson went ashore in 1895 at Seul Choix Point. One of Hall's tugs went to her rescue, towing her first to Naubinway, and after some repairs had been made, to Port Huron. An agreement was afterward made about salvage, the amount being fixed at \$3,212. At that time the Rawson was valued at \$6,000, and the cargo at \$1,000. Upwards of \$1,400 was paid on the agreement, when suit was brought for the remainder. The boat was bought by Harry Lawrence for \$1,225. The barge was built in 1861, and was a fine bark-rigged vessel 35 years ago.

FLOTSAM, JETSAM AND LAGAN.

Natural phenomena—A dandy on shore is disgusting to many; but a swell at sea is liable to sicken everybody.

A couple of coal cargoes have already been loaded at Ashatula for this season's delivery. Some whalebacks laying there will also be loaded before the opening of navigation.

The boiler of the sunken steamer City of Duluth has mysteriously disappeared and marine men are concerned over the disappearance. The boiler was a valuable one and its absence from the wreck cannot be accounted for just at the present time.

Marine men will regret to hear of the death of Capt. George Wallace Mullinix. He was well known to all vessel men here as a quiet, gentlemanly man. Capt. Mullinix has been master of several tugs at Toledo, and was a son of Capt. Mullinix, Sr.

What do we plant when we plant the trees?
We plant the ship which will cross the seas;
We plant the mast to carry the sails;
We plant the plank to withstand the gales,
The keel, and keelson, and beam and knee—
We plant the ship when we plant the tree.

"We are mad," exclaims the editor of a paper in the backwoods of Tennessee. "Darn the people! How can they expect us, out here, 12 miles from a railroad, 25 miles from a river, millions of miles from heaven, about two miles from the devil and about 200 miles from a whisky shop, to get out a lively newspaper!"

At the Surgeon's—"This is rather a nasty wound in your cheek, sir. I will dress it at once, and poultice your damaged eye. How did it all happen?" "Got hit with a stone." "Who threw it?" "My wife." "It's the first time I ever knew a woman hit anything she aimed at." "Well, but she was not aiming at me; she was throwing at a neighbor's hens—and I was behind her."

A dispatch from Columbus says the Queen Transit Co., of Willoughby township, Lake County has been incorporated for the purpose of owning, chartering, handling and operating steamships and other vessel property, together with the proper terminals, and is to be operated with \$32,000 capital stock. J. T. Hutchinson, Hattie M. Minch, Harry Gordon, Jean C. Hutchinson and Roger M. Lee are the incorporators.

The amount of grain afloat at Chicago is now 10,852,000 bushels—1,521,000 bushels of wheat, 6,840,000 bushels of corn, 2,200,000 of oats, 198,000 bushels of rye and 93,000 bushels of barley. Grain in elevators consists of 9,883,000 bushels of wheat, 21,726,000 bushels of corn, 2,810,000 bushels of oats, 895,000 bushels of rye and 503,000 bushels of barley—in all 34,817,000 bushels.

There were five bids received for the removal of the wreck of the Winnipeg from Duluth harbor. Major Sears, Corps of Engineers, U. S. A., rejected all of them on the ground that they were too high. The lowest bid was \$1,700, submitted by Osborn & Co. The highest was by Hugh Campbell, J. W. Fee and James McGee, \$5,000. King & Steele offered to do the work for \$2,590. Napoleon Grignon submitted a bid of \$2,375 and Frank Campbell \$3,200.

The Sault Ste. Marie News has advices from Washington that a radical change in the personnel of the Sault Ste. Marie canal officials is on the tapis. A new superintendent and three assistant superintendents will be appointed and in

all likelihood other changes will take place. James Collie, of Lake Linden, it is said, has a lead pipe cinch on the position of superintendent, and will certainly officiate as such on the canal this year. The present assistant superintendents will also be supplanted by others.

Capt. Albert Gibbs and Carl C. Joys, of Milwaukee, have formed a co-partnership for the transaction of a general vessel business, including chartering, insurance, surveying, protests and adjustment of losses, etc. Capt. Gibbs has had many years' experience on the lakes as a master and enjoys an extensive acquaintance among owners. To enter the new firm Mr. Joys leaves a responsible position with David Vance & Co., in whose employ he has spent the past 11 years.

Reports from various points say that the ice is rapidly disappearing from the harbors. Duluth and Marquette, on Lake Superior, Grand Haven, Milwaukee, Chicago, and other ports on Lake Michigan, and most of the larger shipping places on the lower lakes send out word that ice would cause very little trouble if boats desired to enter or leave port. Most of the vesselmen, however, desire to stay in as late as possible as it always keeps rates at a better figure, the later the opening.

While fishing, a man suddenly fell into the water. A fellow fisherman of benevolent aspect promptly helped him out, laid him on his back, and then began to scratch his head in a puzzled manner. "What's the matter?" asked the bystanders, "Why don't you revive him?" There are 16 rules to revive drowned persons said the benevolent looking man, and I know 'em all; but I can't call to mind which comes first. At this point the rescued man opened his eyes and said; faintly: "Is there anything about giving brandy in the rules?" "Yes." "Then, never mind about the other fifteen."

APPOINTMENT OF OFFICERS.

Mr. B. L. Pennington, Managing Owner, Cleveland, O.: Steamers—C. B. Lockwood, master, R. Jollie; engineer, J. H. Haig. Geo. Spencer, master, F. B. Powell; engineer Adam Haig. Schooner—B. L. Pennington, master, F. A. Pitcher.

Lake Erie Transportation Co., Toledo, O.: Steamers—Geo. J. Gould, master, W. M. Cottrell; engineer, George Butler. S. C. Reynolds, master, Henry Root; engineer, James Miller. Russell Sage, master, T. C. Herrick; engineer, Jos. Kohlbrener. Jno. C. Gault, master, C. H. Lewis; engineer, John Busted.

Hope Transportation Co., John A. Francombe, manager, Detroit: Steamers—W. R. Stafford, master, A. P. Gallinow; engineer, John A. Francombe. Schooners—Ed McWilliams, master, George Johnson. J. A. Francombe, master, George McKenna.

Edward Smith, Buffalo: Steamers—Thomas Cranage, master, John S. McNeil; engineer, E. W. Lafraine. City of Venice, master, Charles Ainsworth; engineer, A. McLachlan. City of Paris, master, E. D. Ballentine; engineer, G. McLachlan. Samoa, master, John Isbister; engineer, L. Walpole. Samuel Marshall, master, August Jean; engineer, B. Leitch. Schooner—Samuel J. Tilden, master, John Burke.

Eddy Bros., Bay City, Mich.: Steamers—City of Bangor, master, William Cavers; engineer, Henry Annett. Penobscot, master, J. H. Coleman; engineer, S. G. Cowell. Selwyn Eddy, master, T. D. Gibson; engineer, George B. Wilson. E. C. Pope, master, John Burns; engineer, John M. Conroy.

The Western Transit Co., Buffalo: Steamers—Arabia, master, John Davis; engineer, Patrick Welch. Boston, master, Dugald Buie; engineer, Frank Miller. Buffalo, master, S. R. Jones; engineer, Wm. McNulty. Chicago, master, F. J. McCabe; engineer, Wm. Tibby. Commodore, master, Thos. Slaterry; engineer, James Brooks. Harlem, master, Donald Gillies; engineer, Henry Hess. Hudson, master, A. J. McDonald; engineer, Moses Trouton. Mohawk, master, Robert Murray; engineer, M. J. Laney. Milwaukee, master, Michael Folan; engineer, John Rainey. Montana, master, F. D. Osborn; engineer, Jas. L. Walker. Syracuse, master, John Fisher; engineer, J. W. Mark. Vanderbilt, master, Neil McCormick; engineer, F. W. Hale.

The Goodrich Transportation Co., Chicago: Steamers—Virginia, master, H. E. Stines; engineer, G. P. Roth. Indiana, master, A. Gallagher; engineer, Ray Flint. City of Racine, master, J. Wilson; engineer, Peter Webber. Atlanta, master, Wm. Nicholson; engineer, W. H. Jerome. Iowa, master, John Raleigh; engineer, J. Buschman. Georgia, master, E. Carns; engineer, J. Webber. Sheboygan, master, Dave Cochrane; engineer, F. Neidert. Chicago, master, J. Munger; engineer, W. H. Dent. Tug—Arctic, master, —. Thayer; engineer, F. Dorey.

The American Transportation Co., Fairport, O.: Steamers—Jno. Harper, master, F. A. Graves; engineer, Edward Reiley. Alex. Nimick, master, D. P. Wright; engineer, E. J. Burns. Schooners—Antrim, master, W. N. Bostwick. Tyrone, master, F. E. Johnson.

The Cleveland Cliffs Iron Co., Cleveland: Steamers—Pontiac, master, C. Z. Montague; engineer George Waterbury. Frontenac, master, S. N. Murphy; engineer, E. T. Barry. Cadillac, master, Geo. A. Symes; engineer, T. J. Reese. Pioneer, master, S. A. Lyons; engineer, E. J. Jenkins. Kaliyuga, master, A. R. Robinson; engineer, Chas. Stoeber. Fontana, master, A. C. Reimers.

The Presque Isle Transportation Co. Cleveland: Steamer—Presque Isle, master, James B. Lowe; engineer, Thos. B. Kelley.

CONTINUED ON PAGE 9.

MARITIME LAW.

SERVISS V. FERGUSON et al.

Circuit Court of Appeals, Second Circuit. Dec. 14, 1897.

SALVAGE—DERELICTS—OBLIGATION OF SALVORS—Salvors rescuing a derelict property are under a legal obligation to care for the preservation thereof while they retained possession.

Salvors of a derelict barge, who placed her in a slip, where she afterwards sank, and was then run upon and crushed by a vessel moving about in the slip, held liable in damage to her owners for the amount of their loss less a reasonable salvage award, on account of their negligence in not taking other precautions to indicate the positions of the sunken boat than merely notifying persons about the wharf of the place where she was sunk, and then going away, and leaving no one in charge.

Appeal from the District Court of the United States for the Southern District of New York.

This was a libel by William H. Serviss against William E. Ferguson and others, owners of the tug Governor, to recover damages for the loss of the scow. The circuit court entered a decree for the libellant, and the respondents have appealed. The district court in rendering its decision delivered the following opinion. BROWN, District Judge:

"The defendant, about midnight on Feb. 8, 1895, picked up the libellant's scow, which was adrift with no one on board, in the ice of the East river, and towed her into the slip between Seventeenth and Eighteenth streets, and moored her outside of another scow there made fast to the dock. Within a few hours afterwards, and while the defendant's tug was temporarily absent, the scow sank at her moorings, without any fault, as I find, of the defendant, and probably through previous injury of the ice. On the return of the salvor a few hours after, it was perceived that the scow had sunk; one mooring line was still taut running down into the water, and some fenders were afloat above her. The slip was occupied by a dredge and several scows belonging to a dredging company, a dumping boat, and several city dirt scows. These were moved around in the slip as occasion required, sometimes by tugs, sometimes by hand. Early in the forenoon one of the boats, being moved by hand, was run upon the sunken scow, but got off with the rising tide. There were contacts by other boats. Some days afterwards, when the scow was raised, it was found to be so crushed as to be worthless. I have no doubt that what was left of her was practically destroyed by the collision with the first boat.

"The libellant contends that the defendant as salvor is answerable for this loss, both for placing the libellant's boat in an unsafe place, and in taking no means for her preservation from injury after she sank. I think the place to which she was taken was well enough, if suitable care had been given to her afterwards; but in this latter respect the libellant's contention must, I think, be sustained.

"A liberal compensation is awarded by the court for salvage services, especially in the rescue of derelict vessels. A corresponding legal obligation rests upon the salvor to take reasonable care for the preservation of the property while he retains possession. Story, Bailm. (9th Ed.) § 623. The Summer, 1 Brown's Adm. 52, Fed. Cas. No. 13,608.

"The only hesitation I have had in this case has arisen from the circumstances that at least two of the men who were at work about the ship noticed the taut line running beneath the water and the fenders afloat; and that from these circumstances they inferred that there was some sunken craft beneath. The defendant's captain, who had brought the boat in, also testified that he gave verbal notice to a number of persons about the wharf before going away

in the morning as to the place where the boat was sunk. No pains, however, seem to have been taken to make this notice general, nor was any special buoy or other mark made of the wreck beneath the water, other than the line and fenders above spoken of.

"The rule of diligence obligatory on salvors is that of ordinary care, such as persons of reasonable prudence would naturally be expected to exercise for the preservation of their own property from loss or injury under like circumstances. Applying this rule, I am constrained to find that the line and the fenders were not sufficient as a reasonable protection to the scow, or a reasonable notice of the sunken wreck, considering the kind of work going on in the slip, and the persons in charge of it. I cannot conceive that a man with reasonable prudence would have left his boat in that manner, liable to be destroyed by the boats moving back and forth in the slip, with no one in attendance to give warning as to the wreck, or any more plain and recognizable buoys. I must, therefore, allow a decree for the libellant, which will be for the value of the scow at the time she sank in the slip, less one-third thereof, deducted as an allowance for the salvage service.

"If it seems a hardship to require the defendant to pay for a boat they have rescued, possibly from complete destruction, it must be remembered that the compensation

TORPEDO BOATS.

(ILLUSTRATED).

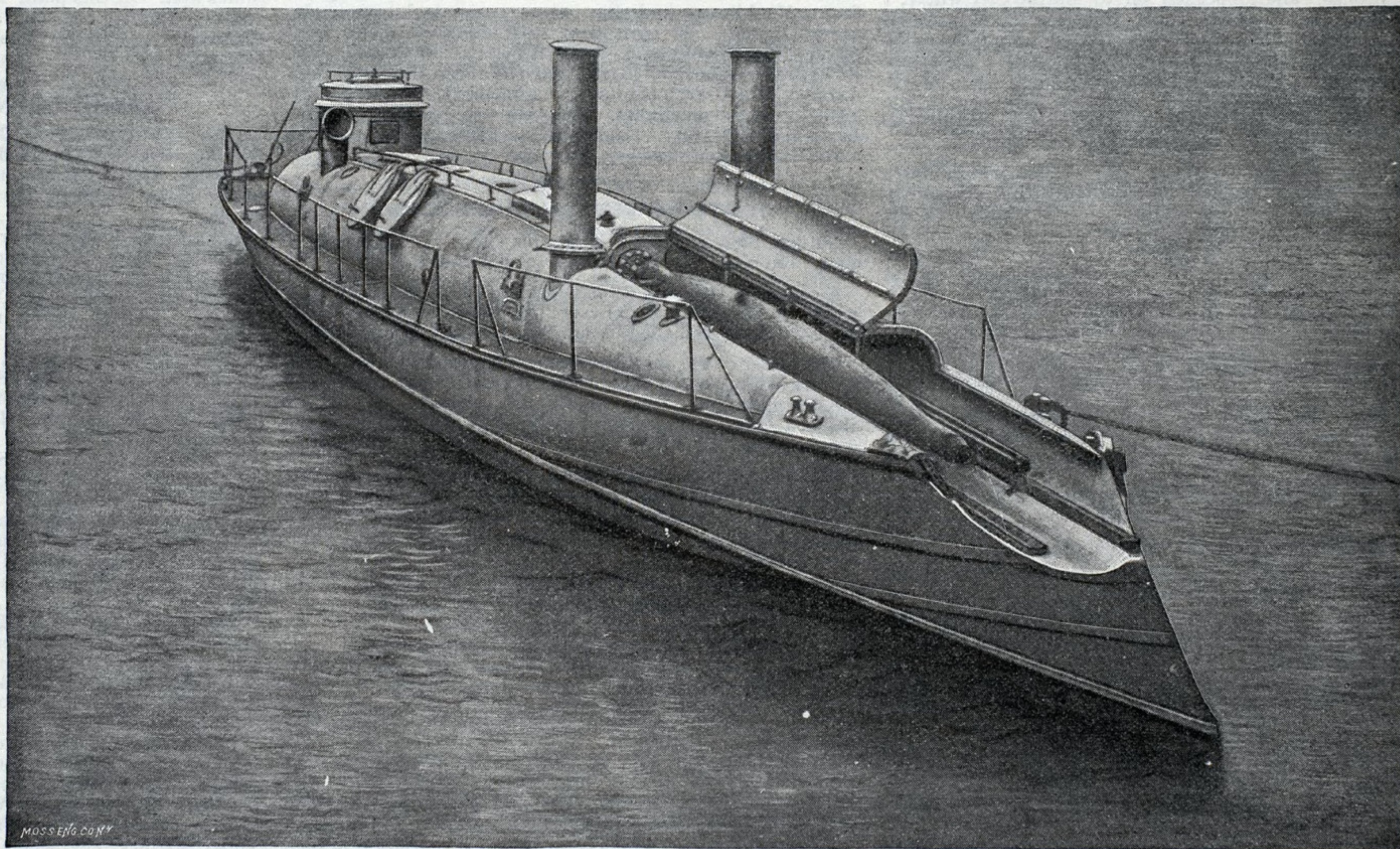
Torpedo boats are now considered an essential arm of the naval service. The turtle-back form of the upper works serves to house the torpedo tubes and gear and the ram bow acts as a means of offense against other torpedo boats.

Torpedoes were formerly forced from the bow tubes by means of compressed air, later, steam gear has been applied, giving a launching velocity of 25 feet per second, and experiments have been made to eject torpedoes by small charges of gunpowder. The davit method of launching by which the torpedo is simply lowered over the side of the boat in a sort of a cradle meets with the serious objection that the torpedo boat must be nearly steady and stationary before the torpedo can be accurately dispatched.

It is of course understood that in approaching an enemy the deck of the torpedo boat is submerged, only her ventilators and smoke stacks being in sight.

CHARGES AGAINST KEEPER OF A LIFE-SAVING STATION.

The court of inquiry appointed by the life-saving service to investigate the charges against Capt. Alfred Nelson, of the Pt. Sauble life-saving station, concluded its labors at



SECOND-CLASS TORPEDO BOAT.

which the court awards for salvage services includes the recompense for all the necessary care of the salvaged property; and that the seeming hardship is no other or different than that in which any other negligent loss involves every ordinary bailee for hire."

Before Wallace, Lacombe, and Shipman, Circuit Judges. Per Curiam. Decree of District Court affirmed, with costs, on opinion of district judge.

THE CHICAGO YACHT CLUB.

Next season the Chicago Yacht Club hopes to bring to Chicago the annual events of the yachting union, and is working to this end in putting the sport on a higher plane. The present officers of the club are: Commodore, F. W. Morgan; vice-commodore, G. L. Peare; rear commodore, George Warrington; secretary and treasurer, Charles Thorne; board of trustees, C. E. Kramer, Louis Wachsmuth, William Herick.

The fleet of the club now includes: Schooners—Idler, 107 feet; Hawthorne, 65-foot class, 90 feet over all; Mistral, 65-foot class, 90 feet over all. Sloops—Siren, 44-foot class, 65 feet over all; Vanenna, 44-foot class, 65 feet over all. Steamers—Pathfinder, Sentinel, Thistle and Catherine C. Wilber.

Ludington on Saturday last. Lieut. S. M. Landrey, of Detroit, has had charge of the investigation. The testimony was taken in secret session. Fifteen witnesses were examined. The charges against Nelson were that he had shown marked partiality to men of his own nationality, Swedes, and that he was guilty of drunkenness and incompetency. The finding of the court will be awaited with interest.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DISTRICT.
CHICAGO, ILL., March 8th, 1898.

WRECK OF STEAMER "CITY OF DULUTH".

Notice is hereby given, that a fixed white lens lantern light has been established on a mast attached to a clump of piles, to mark the wreck of the steamer City of Duluth at the harbor entrance to St. Joseph, Mich.

The focal plane of the light is 55 feet above mean lake level. The beacon light on end of N. pier bears from the mast E. S. E. $\frac{1}{4}$ E., about 450 feet.

By order of the Light-House Board.

C. O. ALLIBONE, Lieut.-Commander. U. S. N.,
Insp. 9th L. H. District

FAULTS IN ADJUSTING COMPASSES.

(COMMUNICATED)

When a compass is well placed and the arrangement of the needles not faulty, it is easy to detect the faults in the adjustment by taking half the sum and half the difference of the remaining errors on opposite courses, commencing with North over East. Half the sum furnishes the quadrantal deviation left, half the difference the semi-circular deviation left for the Eastern semi-circle. As the residual deviations in such a case follow well-known laws, the forces producing them are the resultant forces of the magnetism of the ship and the correcting appliances.

As an illustration may serve the adjustment of compass No. 49 of the Miantonomoh. On January 3, 1892, in $41^{\circ} 10'$ N. Lat. and $72^{\circ} 55'$ W. Long. the deviations of compass No. 49 unadjusted were as stated in the article "Determination of the Magnetic Co-efficients by the Method of Least Squares," published in the MARINE RECORD of Feb. 10, 1898, to which reference is had. On November 26, 1893, in $41^{\circ} 3'$ N. Lat. and $72^{\circ} 13'$ W. Long. compass No. 49 being adjusted, the residual deviations were ascertained as in table No. 1. "The observations were made one day after firing one round from each 10-inch gun and 40 rounds from the starboard after R. F. gun."

TABLE NO. 1.—RESIDUAL DEVIATIONS BY OBSERVATION.

Compass Course.	Deviations.	Compass Course.	Deviations.
N.....	$4^{\circ} 21'$	N.....	$4^{\circ} 21'$
NW.....	$-0^{\circ} 57'$	NE.....	$6^{\circ} 21'$
W.....	$-4^{\circ} 35'$	E.....	$4^{\circ} 40'$
SW.....	$-5^{\circ} 50'$	SE.....	$0^{\circ} 1'$
S.....	$-4^{\circ} 0'$	S.....	$-4^{\circ} 0'$

By taking half the sum and half the difference of the residual deviations on opposite courses, commencing with North over East we obtain respectively the residual quadrantal and semi-circular deviations by observation for the Eastern semi-circle as in the following table:

TABLE NO. 2.—RESIDUAL QUADRANTAL AND SEMI-CIRCULAR DEVIATIONS BY OBSERVATION.

Compass Course.	Quadrantal Deviation.	Semi-Circular Deviation.
N.....	$0^{\circ} 11'$	$4^{\circ} 11'$
NE.....	$0^{\circ} 16'$	$6^{\circ} 6'$
E.....	$0^{\circ} 3'$	$4^{\circ} 38'$
SE.....	$0^{\circ} 2'$	$0^{\circ} 29'$

From the figures in this table we learn that the compensation of the quadrantal deviation was a success, but not the compensation of the semi-circular deviation.

From the data contained in the article above referred to, we learn that compass No. 49 is well placed, the deviations following very closely the established laws. Further do we learn, that approximate values of the force producing semi-circular deviation and of its starboard angle were at hand, differing very little from the most probable values; and that in view of all those facts the compensation of the semi-circular deviation should have been a success.

To find out the fault in the adjustment we have to compute the force and its starboard angle which would compensate the residual deviation. From the residual deviations on North and East, the force is found $= 0.1089$ and its starboard angle $= 42^{\circ} 5'$; from the residual deviations on NE. and SE. the force $= 0.1068$ and its starboard angle $= 40^{\circ} 28'$. The mean of the two values for the force $= 0.1079$ and for the starboard angle $= 41^{\circ} 17'$. The original force and its starboard angle $= 0.4033$ and $-13^{\circ} 17'$ respectively. Both forces form an angle of $54^{\circ} 34'$ and represent a triangle of which two sides and the intercepted angle is known, the third side representing the direction and force of the compensating magnet; which force $= 0.3519$ forming an angle of $14^{\circ} 28'$ with the direction of the magnetic ship's pole. The starboard angle of the compensating magnet, therefore, equals $-13^{\circ} 17' - 14^{\circ} 28' = -27^{\circ} 45'$. From which, with regard to the original data, it appears, that the compensating force is 0.0514 too weak, and its starboard angle $14^{\circ} 28'$ wrong.

As an additional proof it is but necessary to compute the deviation produced by the compensating magnet and compare the results with the original deviations and the residual errors; the formula being sine of semi-circular deviation equals the product of the force and the sine of compass course plus starboard angle. The results are found in the following table:

TABLE NO. 3.—SEMI-CIRCULAR DEVIATION.

Force $= 0.3519$; starboard angle $= -27^{\circ} 45'$.

Compass Course.	Deviation by magnet.	Original Deviation.	Residual Errors by	
			Computation.	Observation.
N.....	$9^{\circ} 26'$	$-5^{\circ} 30'$	$3^{\circ} 56'$	$4^{\circ} 11'$
NE.....	$-5^{\circ} 59'$	$12^{\circ} 50'$	$6^{\circ} 51'$	$6^{\circ} 6'$
E.....	$-18^{\circ} 9'$	$21^{\circ} 45'$	$3^{\circ} 36'$	$4^{\circ} 38'$
SE.....	$-19^{\circ} 38'$	$20^{\circ} 3'$	$0^{\circ} 25'$	$0^{\circ} 29'$

As the figures in the last two columns of the preceding table very nearly agree, it seems that the firing of the guns had no influence on the adjustment; yet this question can be settled only by a full knowledge of the residual deviations before the firing took place.

JOHN MAURICE.

Chicago, March 8, 1898.

OBITUARY.

(GEO. E. HARTNELL, C. E.)

Mr. George E. Hartnell died at his home in Cleveland on Saturday, March 5. His wife and their two sons, Stephen E. Hartnell, of Detroit, and Robert P. Hartnell, Cleveland, were at his bedside when death came.

Mr. Hartnell was born September 10, 1839. He was the son of Mr. and Mrs. George L. Hartnell, well-known early settlers of Cleveland.

On November 1, 1871, Mr. Hartnell married Miss M. Augusta Snow, daughter of Palmer and Harriet Snow, of



THE LATE GEORGE E. HARTNELL.

Cleveland. From his youth until a few years ago Mr. Hartnell followed his profession of civil engineering with success. For a number of years he was connected with the Standard Oil Co. in the capacity of superintendent of construction, and had charge of the building of several of its various plants throughout the country. He spent six months in Germany superintending the erection of the Standard's big establishment in Bremerhaven.

Mr. Hartnell was especially interested in dry dock construction. The first dry dock work undertaken by Mr. Hartnell was the construction of the Ship Owner's dry dock at Cleveland in 1888, and in spite of innumerable difficulties encountered in the locality of the excavation the dock was opened and has been in continuous service ever since. The same can be said of the second dock now in use by the Ship Owners' Dry Dock Co. with much marked success to his credit. The American Steel Barge Co. instructed Mr. Hartnell to plan the construction and machinery equipment for the largest dry dock up to that time figured on to be located at West Superior. These plans were carried into effect, and almost as soon as tested the immense dock received the large wooden steamer Neshoto and has since continued in service.

Mr. Hartnell was vice-president of the Northwestern Transportation Co., vice-president and treasurer of the People's Savings and Loan Association, and secretary and treasurer of the Clifton Park Association. He was also connected with various other business enterprises, a member of

the Chamber of Commerce and Colonial Club, also a member of Oriental Commandery, Knights Templars, and a thirty-second degree mason.

Funeral services over the remains were held at St. Paul's Church. Rev. George H. McGraw, assisted by Rev. W. H. Jones, of St. Johns, officiated. The music was by the quartette of the church. The burial at Lake View cemetery was carried out with masonic rites, of which order Mr. Hartnell had long been a member. The active pallbearers were Harvey H. Brown, A. L. Worthington, William E. Perkins, Col. H. E. Hill, Ira B. Bassett, J. E. Sykes, Andrew Squire and J. M. Dexter. The honorary bearers were Julius Carington, Henry Coffinberry, John Weideman, Judge J. D. Cleveland, Robert Wallace, George Warmington and Robert R. Rhodes.

ORIGIN OF THE TERMS "STARBOARD" AND "PORT."

Referring to the item recently printed in these pages concerning the origin of the terms "starboard" and "port," a correspondent has made the point that the former term has been in use in the English language from a remote period, occurring in Anglo-Saxon as "stear-board," and in middle-English as "stere-board," while in later times it was written "ster-board," from which it developed into its modern form "starboard." It originally meant, so our correspondent says, the board, or side, of the ship on which the man who steered it was placed. It may be called a native English word as distinguished from one of imported origin, and it possesses a special interest in its indication of the method of propelling and steering in vogue from very early times. The ancient mariner could run before the wind with his single square sail, but he could deviate only a few points on either side. Unless therefore the direction of the wind agreed with the course of the vessel, it was necessary for him to be in constant readiness to modify his direction by the help of the oar.

The illustrations of early English manuscripts and the later figures of tapestries exemplify the old square rig, with auxiliary oars and steering from the side. In these examples one or more heavy oars are used at the bow and on one side only; whilst the course is kept by a steersman with a lighter, and often paddle-shaped, oar, worked near the stern, and invariably on the starboard side of the ship. This method of rowing survived until quite recent times, and was well shown on the coal "keels," which added so picturesque a feature to the navigation of the river Tyne. These vessels were manned by crews consisting of three men and a boy; they had a single square sail, and carried some twenty odd tons of coal. When unable to run before the wind resort was had to rowing, and this was done by a single heavy bow oar, worked on the port side by two men and a boy, whilst the skipper kept the course, rowing in time with a lighter oar, called a "swape" from the stern on the starboard side. The fixed rudder, hinged from the stern-post and operated by a tiller, was a later development in ship construction. The Tyne "keel" exemplifies the earlier practice of our ancestors in steering by an oar from the right side of the ship, and from this comes the designation for that side as the "steer-side," or starboard.—Cassier's Magazine.

THE HEAVENS IN MARCH.

Mercury passes through superior conjunction March 15, becoming an evening star. Venus is becoming higher as an evening star. It sets at the same point in the horizon as the sun and from 30 to 45 minutes afterward. Mars is a morning star, rising from 5:30 to 8:30 a. m. in the southeast. Jupiter is becoming conspicuous as the brightest object in the evening sky. It rises, about due east, at 8 p. m., at the beginning of the month and crosses the meridian by the end of the month at 11:45 p. m. Saturn rises in the southeast from 1:20 a. m. to 11:24 p. m.

The times of the moon's phases are: Full moon, March 8, 3 hrs. 29 min. a. m.; third quarter, March 15, 1 hr. 48 min. a. m.; new moon, March 22, 2 hrs. 37 min. a. m.; first quarter, March 30, 1 hr. 40 min. a. m.

The principal fixed stars visible during the month in the evening hours are: To the west, Capella, Aldebaran, the Pleiades, Sirius, and the bright stars of Orion. Near the meridian, Castor, Pollux and Procyon. To the east, Regulus.

VESSELS CLASSED.

The American Shipmasters' Association, New York, have classed or rated this week in the "Record of American and Foreign Shipping" the following named vessels: Screw steamers, Ohio and Glaucus; brig, Harry Smith; British bark, Alice, and Swedish brig, Gustaf; Swedish schooner, Ellida.



ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

GEO. L. SMITH, President.

C. E. RUSKIN, - - - - - Manager.
CAPT. JOHN SWAINSON, - - - - - Editor.
THOS. WILLIAMS, Chicago, - - - - - Associate.

CLEVELAND, - - - - - CHICAGO.
Western Reserve Building. - - - - - Royal Insurance Building.

SUBSCRIPTION.

One Copy, one year, postage paid, - - - \$2.00
One Copy, one year, to foreign countries, - - - \$3.00
Invariably in advance.

ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office.

THE MARINE RECORD PUBLISHING CO.,

Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

CLEVELAND, O., MARCH 10, 1898.

THE most important vessel movement this week is the season chartering of a fleet of five modern steel steamers formerly in the Escanaba-Ashtabula iron ore trade.

OUR Chicago correspondent announces that the Chicago Ship Building Co. has closed a contract with the Minnesota Steamship Co. for a large steel tow-barge to be ready for delivery in August.

THE Detroit river bridge project will not down. Articles of association of the Detroit Union Bridge Co. have been filed at Lansing this week as a sequel to the measures taken in Canada for government permission to erect and operate a bridge across the Detroit river.

WE note this week that the iron workers at the shipyard of the Globe Iron Works Co., as well as those formerly employed at the yards of F. W. Wheeler & Co., W. Bay City, have arranged their differences and are again seeking work. The action of the above named firms have been square and honorable to their workmen throughout and it is probable that a little more consideration as well as circumspection will be exercised before a body of men will allow themselves to be forced by a few ringleaders into a period of uncalled for idleness, only to pick up work months later on a less secure basis than they formerly enjoyed.

CHANGES IN RULES FOR LICENSING OFFICERS.

At the regular meeting of the Board of Supervising Inspectors of Steam Vessels, held in Washington, D. C., January and February, the pilot rules for the Atlantic and Pacific coast, inland waters, and the Great Lakes, were amended, as printed in the MARINE RECORD March 3. These amendments to the rules, having received the approval of the Secretary of the Treasury, have now the force of law, and must be observed accordingly.

Among the rescinded rules we find that the board has thought proper to amend several grades of licenses hitherto required to be held by engineers as follows:

"Chief engineer of condensing freight, towing and fishing steamers; chief engineer of noncondensing freight, towing, and fishing steamers; first assistant engineer of condensing freight, towing and fishing steamers; first assistant engineer of noncondensing freight, towing and fishing steamers; second assistant engineer of condensing freight, towing and fishing steamers; third assistant engineer of condensing freight, towing and fishing steamers."

It is with some degree of gratification that we note the foregoing changes as the RECORD had taken occasion to ridicule the thirty-two grades under which a candidate could receive a license as a marine engineer, and while six of these grades have now become obsolete, we believe that there is room for about a dozen more to be cancelled and

this, too, for the good of the service. Let it be understood that it is relative to the multiplicity of grades of competency that we object. There need not be seven grades of chief engineers and fifteen grades of assistants, nor has there ever been any necessity for distinguishing workmanlike skill to such a nicety, though as we have said, it has now been discovered that six of these grades were superfluous and possibly at a later date we may see a total of sixteen cancelled. Again, we read:

"Any assistant engineer of ocean steamers of 1,500 gross tons burden and over, having had actual service in that position for one year, may, if the local inspectors in their judgment deem it advisable, have his license endorsed to act as chief engineer on lake, bay, sound, or river steamers of 750 gross tons or under."

Why should vessels of 750 and 1,500 gross tons be mentioned? Is the first assistant of a 1,499-ton boat rendered non-eligible; furthermore, why saddle this discretionary judgment upon the shoulders of the local inspectors? Either the engineer is competent or he is incompetent, and therefore we would like to know what is meant by "if the local inspectors deem it advisable." In a voluntary examination the candidate stands upon his merits, or ought to, and therefore does not ask the local inspector to deem anything advisable, all that the examiner has to determine is, whether the candidate is competent or not, qualified to do the work, able to fill the position aspired to, and if so, to signify his assent by granting the license asked for.

Attention should also be directed to the following paragraphs:

"On the Northwestern Lakes and connecting waters, any person holding a second-class pilot license may come before any local board for examination for first-class pilot license, after having served one year as wheelsman, watchman, or as assistant to a first-class pilot on freight, towing or passenger steamers, such service to have been within two years preceding, the application for raise of grade."

"First-class pilots, who have served as such on the waters of the Atlantic or Pacific coast inland waters, or on the Great Lakes, on steam vessels of 1,000 tons and upward, may have their licenses endorsed for masters of steam vessels of 500 tons and under, on the same waters, without examination, when the inspectors are satisfied of their qualifications therefor."

Here again the local inspectors are to be handicapped and shouldered with more than they might care to carry. Masters' licenses are to be given without examination and yet the local inspectors are to be satisfied regarding the qualifications and competency of the candidate, at the same time a first-class pilot of a 999-ton boat is discriminated against and has not the same privilege as a man sailing in a boat a ton or two larger, just as in the assistant engineer's case.

It may also be noted that a second-class pilot is no longer a recognized licensed man, and it is either first-class pilot or master on the lakes for the future.

OF course it is all right to start another steel shipbuilding plant on the coast, and Mr. Carnegie no doubt would like to supply all the steel that a dozen prosperous shipyards could use. By the way, are the eastern yards overcrowded and refusing new contracts at this time? The first requisite in establishing a shipyard is to have a ship to build and it would be well to consider how many intending or would-be shipowners are interceding with eastern shipbuilders to be given privilege of placing in their hands lucrative contracts for new tonnage. France has a couple of first-class subsidized shipyards for rent or purchase just at this time chiefly, or rather solely, on account of having nothing to build.

LAKE FREIGHTS.

Quite a block of ore to be moved from the head of Lake Superior has been covered by charters at 65 cents, and although the boats are not named the general understanding is that it was the whalebacks that made the rate to Carnegie interests and this includes the Bessemer fleet as well. It cannot be learned that any other tonnage has been placed, but outside vessel owners feel that if they want to charter they will have to accept the rate made by the whalebacks, instead of the 70 to 75 cents that had been figured on as the opening rate; however, these are season charter rates.

The season's Marquette rate has been practically fixed at 60 cents and it is reported on good authority that tonnage has been arranged for at that figure.

Nothing has been done at Escanaba yet. The chartering of the five steamers of the Menominee fleet to the Canadian-

Atlantic line means that there will be a demand for other and outside tonnage at Escanaba. The Menominee boats last season moved pretty close to a half a million tons of ore, besides some of them made a few trips to Lake Superior.

The first coal charters were made this week. A couple of boats were placed for Chicago, but the rate was not given out, nor will the boats be loaded until a couple of weeks hence. On first cargoes to the head of Lake Superior some figuring is being done at 25 cents.

LIGHT-HOUSE DUES.

For several months past there has been considerable discussion going on among shipowners in the United Kingdom relative to the levying of light-house dues, the method of assessment, and expenditure of the large sums thus collected by the British government from vessels sailing past, and thus making use of the lights on the coasts.

The last issue of the "Shipping World and Herald of Commerce," London, contained the following item:

"A captain present at the meeting of the Shipmasters' Society, Thursday, mentioned that his vessel had had to pay \$300 light dues in a United States port, whilst a German lying alongside paid nothing. No doubt that was prior to the present year."

Yes, and prior to a good many past years, so that the English captain must have got somehow mixed up in his disbursements, as perhaps some of them are very prone to do occasionally. Knowing full well, however, that no light dues had been collected in the United States for about half a century, yet thinking it possible that some exceptional circumstance or damage repairs to light-house department property had cost the English shipmaster the amount specified, a letter was addressed to Commander Wilde, U. S. N., Naval Secretary of the Light-House Board, asking if there was any manner in which such a sum could have been paid as light dues, he wrote the RECORD as follows: "In reply to your question as to the probability of the truth of the statement, the Board has to state that there are no light dues exacted from any vessel in this country, nor have there been since 1852, the date of the establishment of the Light-House Board."

We can hardly conceive the reason for Shipping World printing the shipmaster's ignorant remarks unless it was to bring forth a positive and official contradiction such as is contained in the foregoing, but yet, the Shipping World could have scotched the untruth at the moment quite as efficiently as we have done at a later date.

LUMBER COMPANY GETS DAMAGES.

After considering the verdict in the suit of the Shores Lumber Co. against the estate of Conrad Starke since last May Judge Johnson of Milwaukee handed down his decision, sustaining the verdict in every particular. Judgment was ordered for the lumber company for \$6,930.

The suit is one that has aroused great interest among lumber shippers and lumber carriers along the lakes. In 1891 Conrad Starke entered into an agreement with the Shores Lumber Co. to transport lumber from the company's docks at Ashland to Chicago. To carry out the contract Mr. Starke caused the steamer E. A. Shores to be built. There was so much delay, however, that the movement of the lumber did not begin until August. In the meantime great quantities of lumber had been stacked upon the docks.

Every effort had been made by the company to secure carriers, but rates had gone up and the boats were busy. When winter set in but little of the lumber had been moved, and when navigation closed the greater portion was still on the docks. The company brought suit, basing its claim for damage upon the loss occasioned by the fall in prices and the cost of keeping the lumber at the Ashland docks.

In the verdict the jury finds that by reason of the decline in prices the company was obliged to sell the lumber carried over at a profit of \$5,280 less than it would have received if the lumber had been moved in due time. The insurance and cost of keeping the lumber upon the dock was \$560 and the loss of the use of the proceeds was fixed at \$1,690. There was a claim by the defendant that the lumber would all have been moved before navigation closed were it not for delays occasioned in loading at Ashland and unloading at Chicago. The jury found that there was a loss from this cause and assessed the damage at \$600.

Both the plaintiff and the defendant moved for judgment. The sum total allowed the plaintiff by the jury was \$7,530. This the court sanctions and after subtracting the \$600 allowed the defendant, awarded judgment for \$6,930.

THAT HUDSON RIVER SHIPYARD.

There has been considerable comment on Mr. Carnegie's recent letter to the Iron Trade Review, and published in the MARINE RECORD of March 3. So far as it relates to the economies attainable by shipyards in the United States and to the suggestion that New York and vicinity offers a great field for such industry, Mr. Robert Wallace, president of the Cleveland Ship Building Co., said: "Notwithstanding the difference in wages between this country and Europe, there is, I believe, not the slightest doubt but that modern steel or iron vessels could be constructed in New York or vicinity much cheaper than in any foreign country. Owing to recent great improvements in machinery used in building boats, and the cheapness of steel, the cost has been reduced until there is no longer a question as to our ability to build ocean-going vessels of any class at a price which would defy competition. I consider a ship building yard in New York or vicinity, backed by a company with ample capital, one of the safest possible investments, and with assurances of large returns. I believe it will be only a matter of a short time when American built ships will be again supreme on the seas."

Mr. Luther Allen, treasurer of the Globe Iron Works Co., said: "Ship builders have realized for some time past that there is a great field for the location of a large modernly equipped shipyard on the Atlantic Coast, in the vicinity of New York. That such a plant could construct sea-going vessels at less cost than is possible in Europe there is but little doubt, even taking into consideration the pauper wages paid European workmen. If we can sell steel rails and other steel products to Europe, such as is now being done, at a profit, there is no good reason why we cannot successfully compete with Europe in ship building. The vessels of the merchant marine of many foreign countries, however, are granted subsidies, and until our government extends a paternal hand in the same direction for American built ships, the industry will labor under a disadvantage."

Mr. Edward Caskin, Supt. Union Dry Dock Co., Buffalo, says: "I certainly agree with you that it will be a 'good thing' from a national standpoint to have a large and first-class ship building plant at or near New York. On the question of material supply there seems to be no argument from Mr. Carnegie's standpoint. On the question of labor, however, I am afraid there would be obstacles. At least that is my opinion from the information I have at present upon the subject. I have had but very little personal experience, but if all accounts are true the labor question in New York is in anything but a pleasant or settled condition."

"With our lake mechanics and our lake methods, and the cheap material which Mr. Carnegie promises, I see no reason why a ship building plant at New York would not be a grand success, especially if it was furnished with a sufficient amount of capital to keep the works constantly running full, and I for one should be glad to see such a shipyard in operation."

Mr. W. I. Babcock, manager of the Chicago Ship Building Co., and other lake ship builders have also contributed their views on the subject.

NOTICE TO MARINERS.

DOMINION OF CANADA, ONTARIO.

PORT ELGIN RANGE LIGHTS—The information given in notice to mariners No. 5 of 1898 with regard to the Port Elgin range lights having been found incomplete, and in some respects inaccurate, that notice is hereby cancelled, and is to be replaced by the following:

Instead of the single light at Port Elgin, on the east shore of Lake Huron, described in list of lights, 1897, under the number 993, there are now two pairs of range lights, arranged to lead into port through the deepest channel.

All four lights are shown from lanterns hoisted on masts, with sheds at their bases. Before the opening of navigation in 1898 the masts and sheds will be painted white.

The front mast of the south range stands upon the shore line about 1,500 feet southwardly from the south end of the government landing wharf.

Approximate position, taken from Admiralty chart No. 519:

Lat. N. 44° 26' 15"

Long. W. 81° 23' 30"

The mast is 14 feet high. The light is a fixed white light, elevated 16 feet above the ordinary level of the lake, and should be visible 4 miles in the line of range. The illumin-

ating apparatus consists of a pressed glass lens. This light was established in 1895,

The back mast of the south range stands 70 feet ESE. from the front one. It is 18 feet high. The light is a fixed red light, elevated 20 feet above the lake and should be visible four miles in the line of range. The illuminating apparatus consists of a pressed glass lens. This light was established in 1895.

The front mast of the east range stands on the government landing wharf, near its northeast extremity. It is 14 feet high. The light is a fixed white light, elevated 23 feet above the lake, and should be visible 9 miles from all points of approach by water. The illuminating apparatus is dioptric of the seventh order. This light was established in 1884, but has since been moved.

The back mast of the east range stands on the shore on the east side of the harbor, 680 feet N. E. from the front mast, and is 16 feet high. The light is fixed red, elevated 25 feet above the lake, and should be visible 4 miles in the line of range. The illuminating apparatus consists of a pressed glass lens. This light was established in 1895.

Vessels entering Port Elgin should bring the south range lights in one and stand in on the range until the east range lights are brought in one, and then follow the east range into the dredged harbor between the breakwater and the landing wharf, leaving the front light on the starboard hand, to clear the wharf.

This notice affects admiralty charts Nos. 519 and 678, and the substance of it should be entered in the Canadian list of lights and fog signals instead of No. 993.

F. GOURDEAU,

Deputy Minister of Marine and Fisheries;

Department of Marine and Fisheries, Ottawa, Canada, 24th February, 1898.

REVERSING IN STEAM TURBINES.

Mr. Parsons, of steam turbine fame, has succeeded in producing a turbine of the general type which is known by his name, which is capable of running in the reverse direction. At the time that the performance of the Turbinia startled the marine world, it was pointed out that such a boat would be useless for torpedo warfare because she was unable to reverse her engines. To remedy the defect Mr. Parsons first proposed to install a separate motor for running astern—an obviously uneconomical arrangement. It is now stated that by using a system of "butterfly" reversing steam valves a motor is constructed in which the steam may be made to flow through the blades of the turbine in either direction—the whole horse-power of the engine being thus available for going astern.

In a letter to the MARINE RECORD this week, the Parson's Marine Steam Turbine Co., Limited, Newcastle-on-Tyne, state that the Turbinia easily steams 7 knots astern and the company are guaranteeing 15½ knots astern in the case of some of the torpedo boat destroyers. Small separate astern turbines are used for reversing one or more of the screw shafts for going astern and the time required for reversal of the engines from full speed astern is much less with turbines than with ordinary engines."

APPOINTMENT OF OFFICERS.

CONTINUED FROM PAGE 5.

Menominee Transit Co., Cleveland: Steamers—Saxon, master, William C. Goodsell; engineer, George E. Averill. Briton, master, James W. Watts; engineer, William R. Donaldson. German, master, William Baxter; engineer, Thos. Kelley. Grecian, master, A. C. Chapman; engineer, O. H. Gilmore. Roman, master, A. J. Greenley; engineer, S. A. Wells.

Corning & Edgar, Saginaw, E. S. Mich.: Steamers—C. H. Green, master, C. E. Little; engineer, Charles Lamb. Oscoda, master, G. W. Ryan; engineer, Jacob Oscar. Schooners—Our Son, master, Peter Edgar. Genoa, master, D. C. Ryan, Ida Corning, master, Peter H. Edgar. C. G. King, master, Michael Ryan.

North Shore Navigation Co., Collingwood, Ont.: Steamers—City of Collingwood, master, W. J. Bassett; engineer, Chas. Robertson. City of Midland, master, F. X. LaFrance; engineer, William Whipples. City of Parry Sound, master, Ernest Walton; engineer, J. L. Smith. City of Toronto, master, A. C. Cameron; engineer, David McQuade. City of London, master, Geo. Dunn; engineer, C. Wilber.

Mutual Transportation Co., Geo. P. McKay, manager, Cleveland: Steamers—Coralia, master, Wm. Cumming; engineer, Chas. G. Love. Corsica, master, Jas. A. Walsh; engineer, Andrew J. Haig. Corona, master, Stephen Murphy; engineer, Grant Donaldson. Cambria, master, Martin Johnson; engineer, Fred Warring.

B. Whitaker & Sons, Detroit: Propeller—B. Whitaker, master, A. Ames; engineer, D. W. Blovet. Schooner—S. V. R. Watson, master, Chas. Woods.

Leisk Line, Milwaukee: Steamer—P. J. Ralph, master,

Henry Leisk; engineer, W. J. Bolton. Schooner—Harold, master, Thos. Leisk.

Alger, Smith & Co., Detroit: Steamers—Volunteer, master, W. H. Rolls; engineer, P. B. McCabe. Gettysburg, master, S. H. Currie; engineer, W. P. Wenner. Tug—Torrent, master, Alex. Cattanaach; engineer, J. M. Cronenweth.

The Huron Barge Co., Cleveland: Steamer—Pathfinder, master, W. B. McGregor; engineer, C. A. Heisner. Barge—Sagamore, master, E. C. Joiner.

The McGraw Transportation Co., Bay City: Steamers—City of Paris, master, O. D. Ballentine; first engineer, Wm. C. McDougall; second engineer, Andrew Jackson. City of Venice, master, Chas. Ainsworth; first engineer, J. A. McDougall; second engineer, W. M. Scott.

Ashley & Dustin, Detroit: Steamers—Frank E. Kirby, master, A. J. Fox; engineer, E. Penny. Wyandotte, master, Jos. Waltman; engineer, J. Holder.

North Western Transportation Co., Detroit: Steamers—H. H. Brown, master, D. Girardin; engineer, John H. Hand. S. R. Kirby, master, John F. Jones; engineer, Wm. Watts. Fayette Brown, master, Jos. Powell; engineer, Nicklas Anderson. E. M. Peck, master, Thomas Beggs; engineer, Wm. Brake. Barge—G. E. Hartnell, master, Alex. Callum.

The J. Emory Owen Transportation Co., Detroit: Steamers—John Owen, master, E. F. Thorp; engineer, S. L. Phillips. J. Emory Owen, master, F. C. Hart. Schooner—Michigan, master, F. J. Cadotte.

The Flint & Pere Marquette R. R. Co., Ludington. Steamers—F. & P. M. No. 2, master, R. Hasleboth; engineer, Geo. Depuy. F. & P. M. No. 3, master, C. Thompson, engineer, H. Nyland. F. & P. M. No. 4, master, Jos. Russell; engineer, F. McLaren. F. & P. M. No. 5, master, J. J. Doyle; engineer, W. H. Stone. Pere Marquette, master, F. A. Dority; engineer, Robt. McLaren.

D. C. Whitney, Detroit: Steamers—E. W. Oglebay, master, W. H. Hutcheson; engineer, Ed. Egan. Merida, master, John Ivers; engineer, Jas. Balfour. Tampa, master, John Leonard; engineer, Chas. Murett. Mecosta, master, A. C. May; engineer, Geo. Francomb. Lansing, master, Chas. Miner; engineer, Jos. Corryean. D. C. Whitney, master, Thos. Brady; engineer, J. Lacy. Nipigon, master, Edward July; engineer, Chas. Francomb. Barges—Ashland, master, Geo. Dennis. Wayne, master, Arn. Elliot. Melbourne, master, Geo. Cooper.

C. J. Morley, Marine City: Steamers—W. B. Morley, master, J. A. Nicolson; engineer, P. Caniff. St. Lawrence, master, A. H. Senghas; engineer, S. O. Durant. J. J. Hill, master, John Andrews; engineer, John Leitch.

The Shores Lumber Co., Chicago: Steamers—Jas. H. Prentice, master, R. T. Evans; engineer, A. L. Roberts. Schooners—Middlesex, master, P. T. Weimar. Halsted, master, L. Davidson.

James McBrier, Erie, Pa.: Steamers—Fedora, master, F. A. Fich; engineer, John Stephens. Nyanza, master, W. W. Wilkins; engineer, M. McAuliff. Uganda, master, C. H. Wilson; engineer, Geo. Gourlay. Sevona, master, D. S. McDonald; engineer, Wm. Phillips.

H. Loutit, Grand Haven, Mich.: Steamer—Pentland, master, Thos. McCambridge; engineer, C. Ball.

Hadley & Burdick, Toledo, O.: Steamer—Panther, master, Andrew W. Stalker; engineer, Magnus Schladetsch.

Vulcan Transportation Co., Detroit, Mich.: Propellers—Forest City, master, Joseph Sanders; engineer, William Taylor. R. J. Hackett, master, Thos. H. Sanders; engineer, Wm. McKittrick. Schooners—H. H. Brown, master, Alexander Glen. Wm. McGregor, master, John Hochrath.

The Toronto Ferry Co., Toronto, Ont.: Steamers—Primrose, master, Chas. Tufford; engineer, Harry Brownley. Mayflower, master, George Moulton; engineer, Edward Abbey. Shamrock, master, Thos. Jennings; engineer, D. Foley. Thistle, master, Alex. Martin; engineer, M. Murphy. Kathleen, master, John Fertile. Soland Queen, master, Joe Tymon; engineer, Thos. Good. Luella, master, M. Corcoran; engineer, John Smiley.

H. J. Johnson, Cleveland, O.: Steamer—H. J. Johnson, master, Chas. Miner; engineer, John Seymour. Schooner—Helvetia, master, Chas. Miner, Jr.

Inter-Ocean Transportation Co., David Vance & Co. Mgrs., Milwaukee, Wis.: Steamers—Maryland, master, J. E. Yax; engineer, M. Conley. Manchester, master, T. Kelly; engineer, J. Grant. Manhattan, master, H. F. Loftus; engineer, W. R. Patterson. Massachusetts, master, P. A. Anderson; engineer, W. Ahren. Merrimac, master, M. Smith; engineer, L. Allison. Minnesota, master, B. Sniffin; engineer, W. H. Pinkham. Schooner—Metacomet, master, W. L. Shields.

Matthews Line, Toronto, Ont.: Steamers—Niagara, master, Jas. Morgan; engineer, Thos. Mills. Clinton, master, John Joyce; engineer, Jno. Gray. Barges—Lisgar, master, John Fahey. Grimsby, master, S. Atkinson. Schooner—Clara Youell, master, N. J. Colwill.

Mitchell & Co., Cleveland, O.: Steamers—Lagonda, master, C. B. Galton; engineer, Wm. F. Sauber. J. J. McWilliams, master, S. S. Stratton; engineer, Wm. Fitting. Wm. H. Gratwick No. 2, master, M. P. Parson; engineer, Henry Graves. John Mitchell, master, R. C. Jackson; engineer, John Reiley. Robert L. Fryer, master, B. D. Townsend; engineer, Gus. Guy. Wm. H. Gratwick No. 1, master, F. D. Galton; engineer, Frank Parker. Wm. F. Sauber, master, H. A. Stewart; engineer, Peter Laverly. George T. Hope, master, K. A. Jensen; engineer, Lewis Minnie. Edward Smith No. 1, master, C. D. Miller. Barges—John C. Fitzpatrick, master, T. T. Tallaksen. Seldin E. Marvin, master, Wm. Briner. Robert L. Fryer, master, Elia Jacquer. Schooners—Camden, master, Steven Rose. Troy, master, H. C. Diem.

CHICAGO Nautical School,

20 MICHIGAN AVE., CHICAGO.

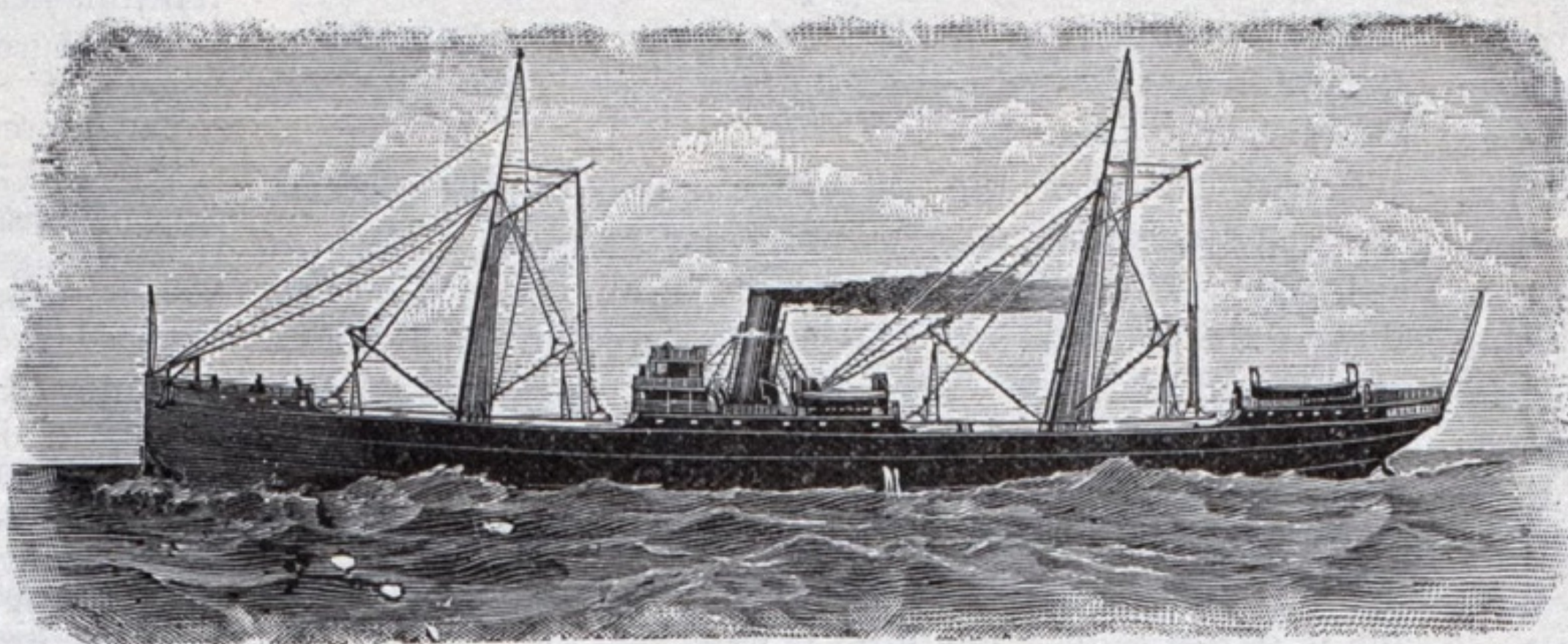
A Full and Complete Course of Instruction in Lake and Ocean Navigation. Candidates prepared for Examinations before Local Inspectors.

GREAT LAKES REGISTER PRIZES.
TWO PRIZES, \$50; SIX \$25.

Students may begin at any time.

SEND FOR CIRCULAR.

F. W. WHEELER & COMPANY,



BUILDERS OF ALL KINDS OF

Iron, Steel, and Wooden Ships

FOR LAKE OR OCEAN SERVICE.

West Bay City, Mich.

F. W. WHEELER, Pres.
J. S. PORTER, Treas.

H. T. WICKES, V. P.
C. W. STIVER, Sec'y.

FRONTIER IRON WORKS, Detroit Mich. MARINE ENGINES.

Wm. Wilford's

Matchless Waterproof Cloth

AND
Societe Anonyme De Veluwe,
Japan Paint.

EDWARD A. BUNKER, Sole Agent,
20 Broad St., New York City.

W. A. McGILLIS & Co.

DREDGING.

57 WADE BUILDING. CLEVELAND, OHIO.

CORRESPONDENCE.

We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

SHIPYARD WAGES—A CORRECTION.

I have just received the following letter in reference to an item which appeared in last week's correspondence to the RECORD, and as it is a pleasure to be set right on any subject which is susceptible of a misleading tenor we cheerfully publish the letter together with the exact rendering of the investigating committee, from which it can be seen that F. W. Wheeler & Co. have acted all through in a considerate manner towards their employees.

WEST BAY CITY, MICH., March 7, 1898.

Editor Marine Record:

In your issue of March 3rd we notice an item in your Detroit correspondence, stating that the State Board of Arbitration had reviewed the testimony taken in the matter of the strike of our riveters and had rendered a verdict to the effect that the '97 rate is to be paid all employees; that riveters and setters' wages are to be \$2.50 for 10-hour day; that the rate offered by the company was \$2.25 and that both sides had agreed to stand by the result of the arbitration. Your correspondent is evidently at sea in every statement made, as the enclosed copy of the decision will show. This decision corresponds in every particular with our offer to the men before the strike. Would also state that the board did not arbitrate this case; it merely held an investigation at the request of the men. They alone agreed to stand by the decision whatever it might be.

Our rate of wages at the present time is the same as before the strike and is considerably in advance of the '97 scale.

Will you kindly make this correction in your next issue?

Yours truly,

F. W. WHEELER & Co.,
Per C. W. Stiver, Sec.

STATE OF MICHIGAN.

The State Court of Mediation and Arbitration.

In the matter of the Wheeler Ship Yard Strike
at West Bay City, in the county of Bay.

DECISION OF THE COURT.—After careful consideration of

the evidence in this case, and after an examination of the F. W. Wheeler & Co. contracts relating to boats Nos. 124, 125 and 126, we find:

First: That the wages of the shippers and calkers should be 25c per hour.

Second: That the scale of wage prices in the F. W. Wheeler shipyard for 1897 with a raise of 7 per cent. added thereto, as per offer of said company to their employees under date of January 20th, 1898, is fair and reasonable under all the circumstances, and all the company could afford to do for labor in the construction of the three boats above mentioned.

Third: That the agreement referred to in the evidence in this case as exhibit 8, is not seriously objectionable, and can work no harm to the employees who are willing to do what is fair and right.

Fourth: That no discrimination should be made against the employees or so called "strikers"; but that all of them should be taken back and given work, subject of course to the right which all employers have, to decide as to the qualifications and competency of their employees.

Dated Detroit, March 1st, 1898.

CARL L. SCHMIDT,
T. H. ROBERTS,
JEROME W. ROBBINS,
Members of said Court.

SOME INTERESTING FACTS ABOUT STEEL.

The term steel signifies iron containing a small percentage of carbon, which may vary from less than 1 to 15 per cent.

In modern times steel signifies iron that has an infinitesimal amount of carbon in it, provided it is produced by the open hearth or Bessemer process.

Meteoric iron is a close representative of nickel steel, and was used by the ancients.

The majority of steel in the early times was obtained from wrought iron.

Wrought iron is produced from cast iron melted in contact with iron cinder and iron ore, and when cooled and worked again heated in closed vessels with shavings of horn and similar material.

Steel under the intense heat of a converter is as liquid as water.

In 1878 another great advance was made in the art by Mr.

Sidney Gilchrist Thomas, by which ordinary grades of iron ore were rendered available for steel making. The Thomas invention related to the addition of a quantity of lime to the charge, and the lining of the converter with special bricks formed of lime which absorbed the phosphorus in the cast iron.

The slag obtained by the Thomas process is found to be rich in phosphorus, and is used largely as a fertilizer.

The Thomas improvement is the greatest yet made on the Bessemer process.

Following the Thomas discovery the next important improvement in the process was that made by William Siemens in 1882, which consisted in burning the fuel so as to produce a gas which was burned in a peculiar furnace, obtaining thereby high temperature and great economy of heat.

Steel in its hardest state is too brittle for most purposes, and the requisite strength and elasticity is obtained by tempering, which is performed by heating it to a certain color, dependent on the use to which it is to be put, and cooling quickly.

The tensile strength of steel ranges from 75,000 to 96,000 pounds. The average is about 86,000.

A hemp rope 16.5 inches in circumference would be the equivalent in strength of a steel rope five inches in circumference.—From "Riehle's Digest of Physical Tests."

MILWAUKEE YACHTING.

The Milwaukee Carnival Association will offer cash prizes to the owners of the winning yachts in the races which are to be held on the bay on July 2, which has been set aside as naval day at that port. At a meeting held a few days ago it was decided to vote \$2,000 for expenses which might be incurred in getting the yachts to Milwaukee. From this amount the prizes will also be taken. It is expected that yachts from Chicago, White Bear Lake, Cleveland, Detroit, Oshkosh, Neenah, Fond du Lac and several other cities will be sent to compete in the various events which will be arranged later.

Commodore Coleman has announced that he expected fully 150 yachts would be entered, and it has been decided to divide these yachts into nine classes.

The regular regatta will also take place on July 4. The program this season will surpass all former events, as it is expected that the yachts entered in the races to be given during the carnival will remain and compete in the events of the association.

LITERARY NOTICES.

The Arena for March is rich in great contributions. The first article entitled "Trusts, Their Causes and the Remedy," by Senator Marion Butler, is a powerful exposition of the great theme now occupying the attention of the public. Senator Butler sounds a keynote, the echo of which will be heard far.

A most important national subject is discussed in the March number of the North American Review by Commodore G. W. Melville, Chief Engineer of the U. S. Navy. In "Our Future on the Pacific—What We Have There to Hold and Win," Commodore Melville deals with the potentiality of the Pacific States, their coast defenses, the extent of and the possibilities for America in the markets westward of her shores, and the revival of the shipping and commercial interests of the nation on the waters of the Pacific.

Several pages of Harper's Weekly for February 26th are devoted to illustrations of the ill-fated Maine. Prominent among them is one of Captain Sigsbee in his cabin, reproduced from a photograph in the possession of Mrs. Sigsbee. There are many other reproductions of the crew, and of portions of the ship taken when she was last at the Brooklyn navy yard, all of which have a profoundly pathetic interest at the present moment. The Weekly has dispatched a special correspondent to Havana. The fifth article in the series of "Bright Skies in the West," by Franklin Matthews, appears in this number, under the title, "The Unexpected in Kansas."

W. S. Harwood writes of "The Great Lakes" in March St. Nicholas. The author says: All that region to the north of the lakes and immediately skirting them from Quebec to Lake Nipigon, and around to and beyond old Fort William, was the exploring ground of the French. It was their new country—the place where they were to found a mighty empire, their "Novia Francia," or New France. The French explorers and the French priests believed, and their belief was strengthened and supported by the tales of the Indians, that away beyond the Kitichi Gummi or Big Lake—our present Superior—there was a vast salt sea. It is hardly

possible in these days to understand how little they knew of that region. They talked about a northward passage to Cathay; and they not only talked about it, but they wrote learned and laborious treatises, and spoiled many valuable reams of paper, and made very many amusing volumes, in their efforts to prove that just beyond the head of Lake Superior there was a great and short river, whose mighty course led to a mighty sea, which was certainly not more than fifteen hundred miles from Japan!

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY. Bushels.
Buffalo	800,000	1,094,000	90,000	50,000	350,000
Chicago	8,450,000	16,626,000	1,425,000	795,000	503,000
Detroit	107,000	14,000	9,000	27,000	1,000
Duluth and Superior	2,707,000	2,696,000	2,747,000	1,275,000	552,000
Milwaukee	108,000	123,000	83,000	65,000	25,000
Montreal	110,000	45,000	784,000	36,000	36,000
Oswego .....	.....	.....	.....	.....	.....
Toledo	225,000	504,000	295,000	14,000	.....
Toronto	33,000	.....	17,000	.....	7,000
On Canal .....	.....	.....	46,000	.....	.....
On Mississippi	92,000	110,000	.....	.....	.....
Grand Total	33,012,000	41,471,000	13,163,000	3,576,000	1,901,000
Corresponding Date, 1897	42,768,000	26,377,000	13,823,000	3,574,000	3,213,000
Decrease	1,076,000	.....	310,000	84,000	264,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

EASTERN FREIGHT REPORT.

Messrs. Funch Edye & Co., New York, enclose to their patrons this week a fine half tone cut of the late U. S. S. Maine and state relative to the freight market as follows:

Since our last report we have experienced an active freight market for grain boats, the rates obtained for Cork f. o. cargoes being fully maintained on last week's level. The

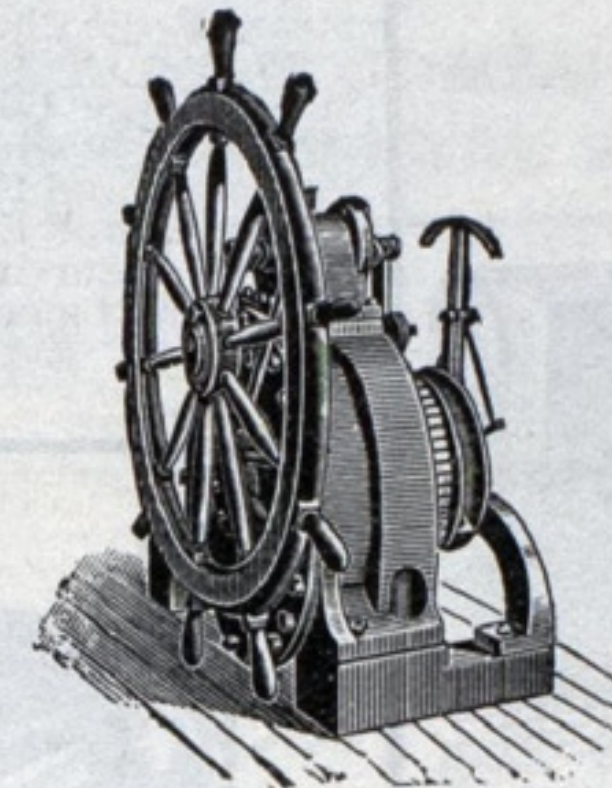
inquiry does not appear satisfied yet at the moment, although owners' enhanced views act as a check on further business. Larger boats are likewise in good demand, and, in some instances, prompt tonnage of this description has obtained unusually good rates and conditions. The inquiry for other trades is light, although some concession on part of owners would doubtless result in further fixtures from the Gulf cotton ports and for timber, the latter momentarily quite out of line in respect to freight.

Our market for sail tonnage continues to show quiet firmness, such as last reported, and there is no new development especially to dwell on.

PROPOSALS.

PROPOSALS FOR CONSTRUCTING LOCK AND APPROACHES.—U. S. Engineer Office, Custom House, New Orleans, La., Feb. 16, 1898. Sealed proposals for constructing lock and approaches for improving Bayou Plaquemine, La., will be received here until 12 o'clock noon, April 15, 1898, and then publicly opened. Information furnished on application. Jas. B. Quinn, Major, Eng'rs. 7-10.

Queen City Hydraulic Steerer.



THE BEST AND MOST POWERFUL STEERER FOR TUGS, STEAMERS, ETC.

MANUFACTURED BY

Queen City Engineering Co.

BUFFALO, N. Y.

Write for Prices and References.

TOBIN BRONZE

(Trade-Mark Registered.)

Tensile strength of plates one-quarter inch thick, upward of 78,000 lbs. per square inch. Torsional strength equal to the best machinery steel. Non-corrosive in sea water. Can be forged at cherry red heat. Round, Square and Hexagon Bars for Bolt Forgings, Pump Piston Rods, Yacht Shafts, etc. Rolled Sheets and Plates for Pump Linings and Condenser Tube Sheets, Centerboards, Fin Keels and Rudders.

The Ansonia Brass & Copper Co.

SOLE MANUFACTURERS,

Send for Pamphlet.

19-21 Cliff St., NEW YORK.

INCORPORATED 1794.

Insurance Company of North America

CAPITAL, Paid up in Cash, - - - - \$3,000,000.00
ASSETS, - - - - 10,023,220.93

CHARLES PLATT, President.

GREVILLE E. FRYER, Sec'y and Treas.

EUGENE L. ELLISON, Vice President.

JOHN H. ATWOOD, Assistant Secretary.

T. HOUARD WRIGHT, Marine Secretary.

Lake Marine Department, GEORGE L. McCURDY, MANAGER.
CHICAGO, ILL.

Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian and United States Light-House Departments for channel and harbor lighting; over 500 gas buoys and gas beacons in service.

Burn Continuously

from 80 to 365 days and nights without attention, and can be seen a distance of six miles.

Brilliant and Steady Illumination.
Economical and Reliable in Operation.

CONTROLLED BY THE

Safety Car Heating and Lighting Co.,

160 Broadway, NEW YORK CITY.

MARINE AND INLAND INSURANCE.

Atlantic Mutual Insurance Co.

Organized 1842.

Office 51 Wall Street, NEW YORK

Insures against Marine and Inland Transportation Risks and issues policies making Loss Payable in England.

Assets over \$10,000,000 for the Security of its policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

A. A. RAVEN, Pres.

F. A. PARSONS, V. P.

CORNELIUS ELDERT, 2d V. P.

THEO. P. JOHNSON, 3d V. P.

J. H. CHAPMAN, Sec'y.

NEW YORK.
PHILADELPHIA.
BOSTON.

BALTIMORE.
SAN FRANCISCO.
NEW ORLEANS.

Johnson & Higgins,



Average Adjusters,
And
Fire and Marine
Insurance.

Special Facilities for Placing Marine Lines.

Guaranty Bldg., BUFFALO, N. Y.

SELLERS' RESTARTING INJECTOR

LONG LIFE, HOT WATER, SIMPLEST AND BEST, WIDE RANGE, LONG SERVICE.

For Stationary, Portable, Traction Engines, Tugboats, &c. Thoroughly Reliable—Perfectly Automatic.

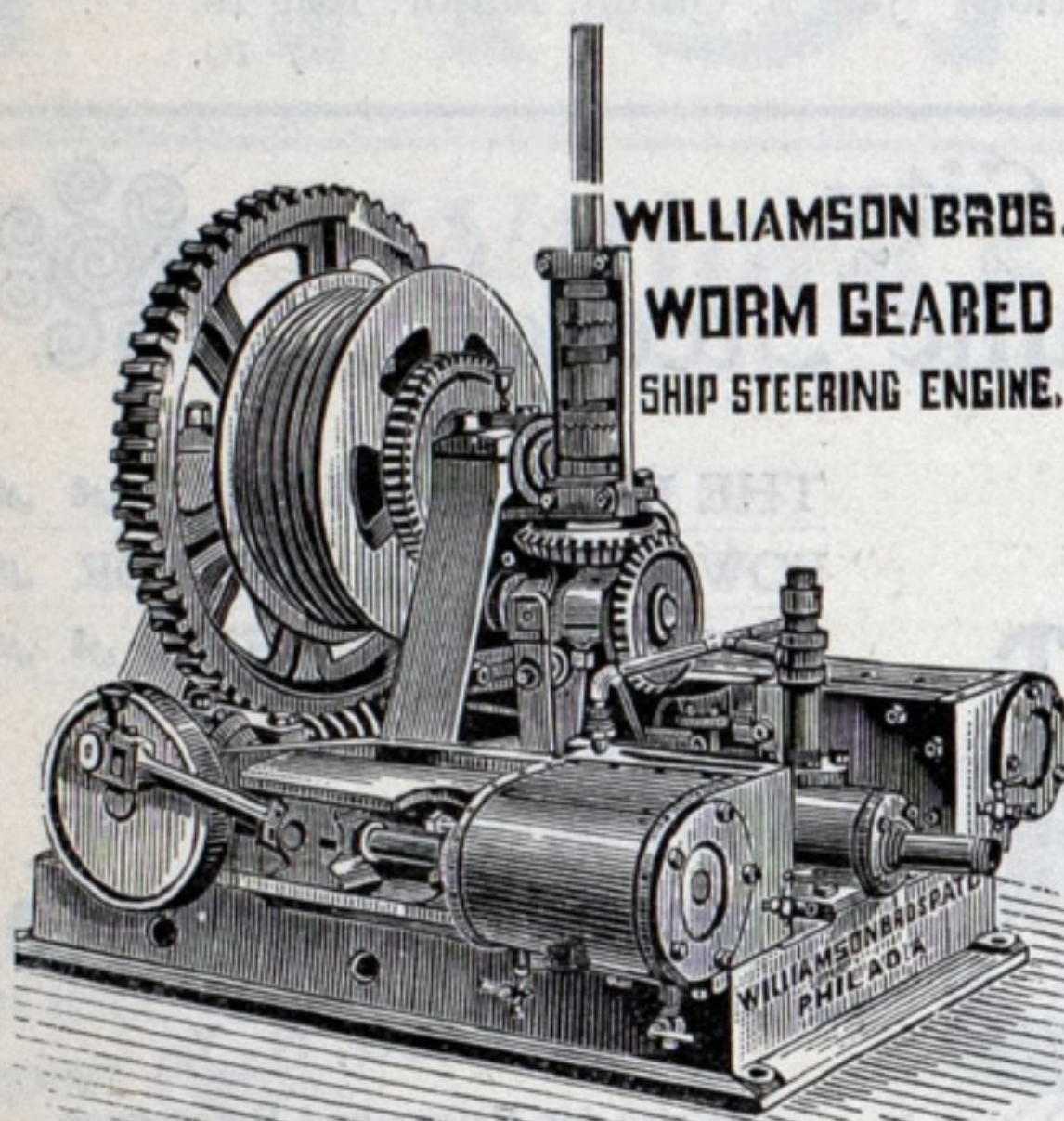
JENKINS BROS., - Selling Agents, NEW YORK, BOSTON, PHILA., CHICAGO.

A. J. MORSE & SON.
DIVING APPARATUS
 140
CONGRESS ST. BOSTON.



WILLIAMSON BROS.,

COR. RICHMOND AND YORK STS.,
 Philadelphia, Pa.



HOISTING and SHIP ENGINES
 STEERING ENGINES.

With either Fractional, Spur or Worm Gear of
 Various Patterns to Suit all Purposes.

ESTABLISHED 1871.

Montague Iron Works Co.

INCORPORATED 1893.

MANUFACTURERS OF

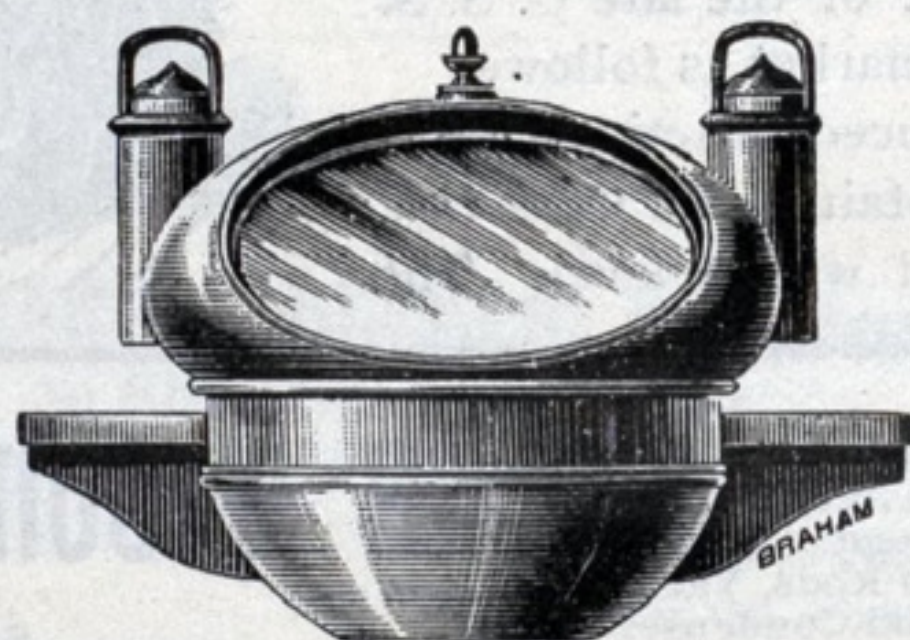
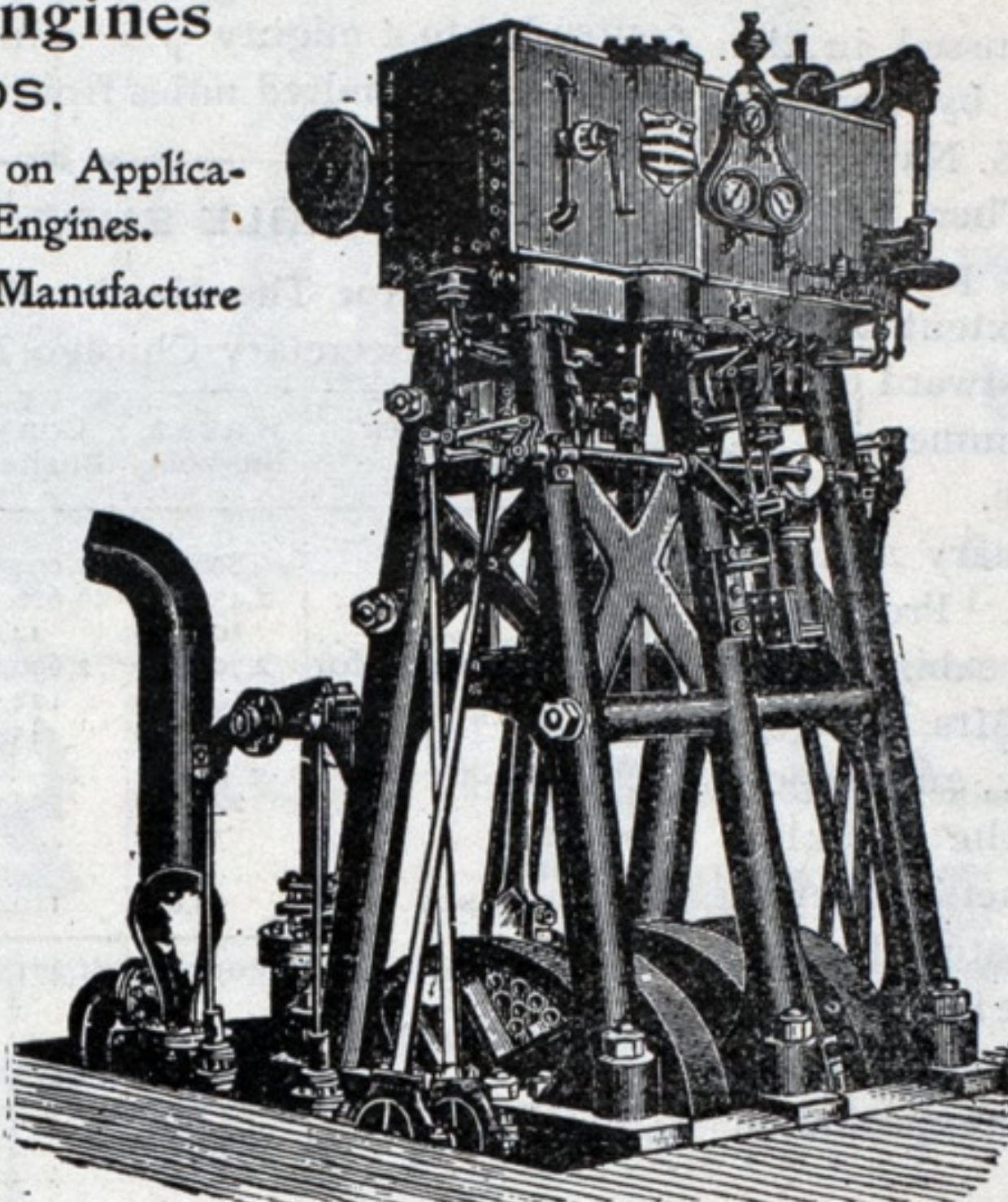
Marine and Stationary Engines
 AND BOILERS OF ALL KINDS.

Heavy Castings a Specialty. Prices Quoted on Application.
 Fore and Aft Compound Marine Engines.

The Engines in the following boats are of our Manufacture

Tug Hunter, Chicago, 15 and 28x22.
 Tug Tacoma, Chicago, 16 and 30x24.
 Tug Zenith, Duluth, 18 and 36x30.
 Steamer Glenn, South Haven, 14 and 28x20.
 U. S. Survey Steamer, W. S. Hancock 12 and 21x20.
 Steamer Pine Lake, Charlevoix, 16 and 30x24.
 Passenger Steamer Pilgrim, St. Clair, 14 and 28x20.
 Steam Barge Iona, Grand Haven, 24 and 46x42.
 Steam Barge M. T. Greene, Chicago, 20 and 36x36.
 Steamer H. W. Williams, South Haven, 18 and 36x30.
 Steam Barge Mark B. Covell, Manistee, 18 and 38x36.
 Steam Barge Isabella J. Boyce, Michigan City, 19 and 32x26.
 Steam Barge Luella H. Worthington, Cedar River, 19 and 36x30.
 Passenger Steamer City of Kalamazoo, South Haven, 20 and 40x30.
 Steamer Oval Agitator, Chicago, 14 and 28x20.
 Tug E. G. Crosby, Muskegon, 16 and 30x24.
 Tug Peter Coates, Sault Ste. Marie, 10 and 20x16.
 Steamer Lorain L, South Haven, 12 and 21x16.
 Passenger Steamer Lotus, Escanaba, 16 and 30x24.
 Steam Barge Sachem, Grand Haven, 21 and 38x36.
 Passenger Steamer Bon Ami, Saugatuck, 14 and 28x20.
 Steam Barge Charles A. Street, Chicago, 20 and 36x36.
 Steam Barge Edward Buckley, Manistee, 18 and 36x30.
 Passenger Steamer E. G. Maxwell, Pentwater, 14 and 28x20.
 Passenger and Freight Steamer Bon Voyage, Saugatuck, 16 and 30x26.
 Passenger and Freight Steamer Mabel Bradshaw, Muskegon, 26 and 28x26.
 The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them all sizes and guarantee them to give satisfaction. Prices furnished on application.

MONTAGUE IRON WORKS CO., Montague, Mich.



FRANK MORRISON,

Compass Adjuster

and manufacturer of

Nautical Instruments

Compasses, Barometers, Patent Logs, Binnacles, Steam
 Gauges, Marine Glasses, Engine Indicators.

All Nautical Instruments Carefully Repaired.

OFFICE WITH UPSON, WALTON & CO., 161 RIVER ST.,
 CLEVELAND, O.

Marine Engines.

SINGLE and
 COMPOUND.

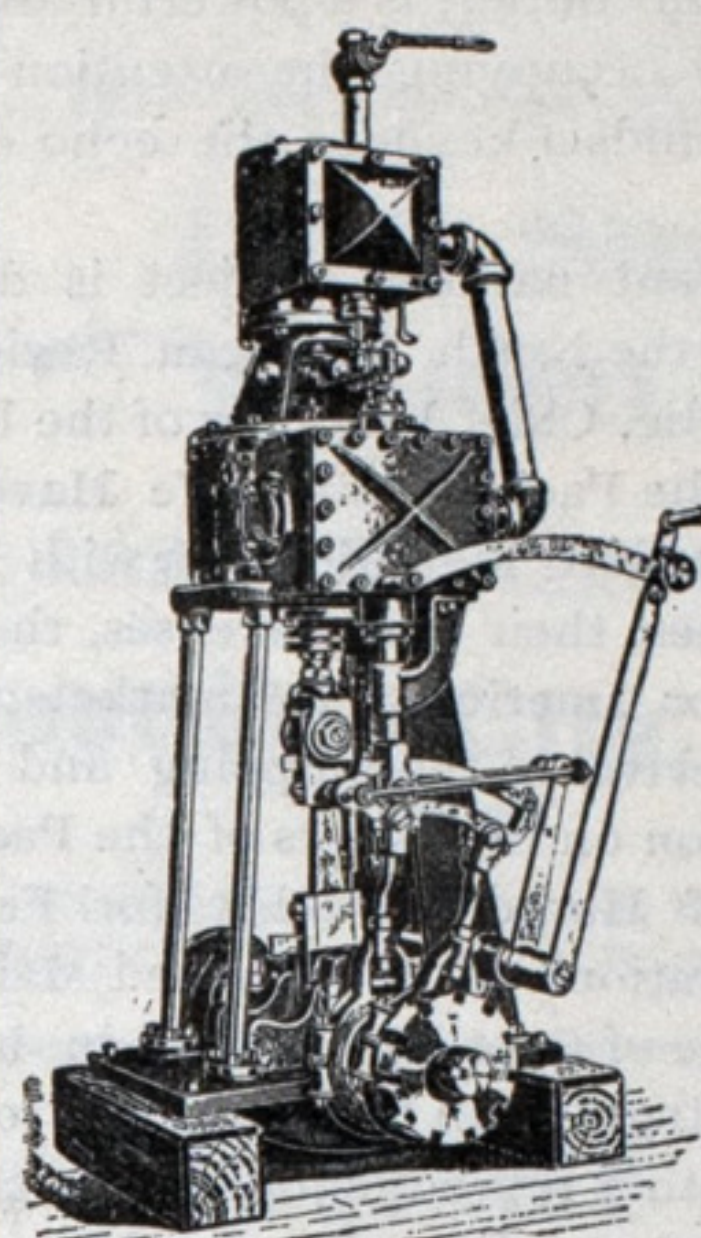
5 to 200 HORSE
 POWER. These en-
 gines are high-class
 in workmanship and
 material and moder-
 ate in price.

Send for cuts, de-
 scription and prices.

Centrifugal
 Pumps

For raising coal,
 sand, etc. For dredg-
 ing, wrecking, and
 circulating.

Write for cata-
 logue.



MORRIS MACHINE WORKS,
 Baldwinsville, N. Y.

HENION & HUBBELL, Agts, 61-69 N. Jefferson St.,
 Chicago, Ill.

ABRAM SMITH.

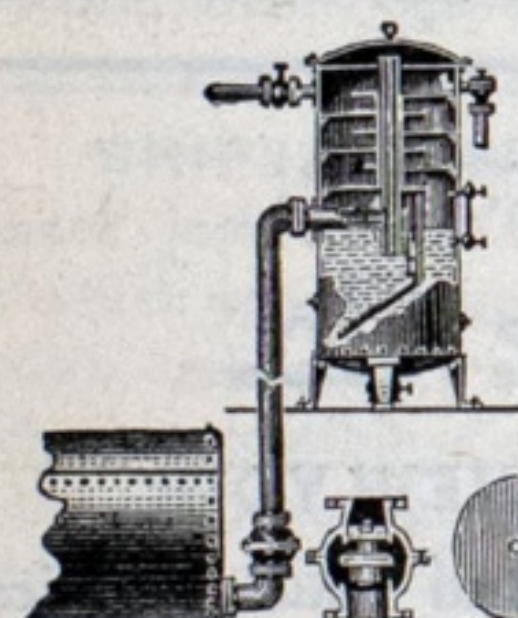
ANGUS H. SMITH.

Abram Smith & Son, SHIPBUILDERS,

ALGONAC, MICH.

WOODEN SHIPS
 OF ANY DESCRIPTION
 BUILT, REBUILT or
 REPAIRED.

Send for Specifications, Prices, Etc Good
 Slips for laying up boats.



Buffalo Feed Water Heater AND PURIFIER.

Made in all Sizes and to Suit all Conditions.

ROBERT LEARMONTH,

Send for Catalogue.

200 Bouck Ave., BUFFALO, N. Y.

Boats for Amateur Builders.

All designs shown in my new "ALBUM OF DE-
 SIGNS" to scale as indexed or enlarged full size
 very cheap.

SPECIAL DESIGNS TO ORDER.

Patterns, Moulds and Instructions to Amateur
 Builders.

Small Steam and Sailing Craft Built and Rigged
 entirely or in part.

Stem and Stern Posts, Keels, Frames furnished
 worked in the wood. All kind of boats set up frame
 and shipped "knockdown" to any part of the world.

SEND 50 CENTS FOR 72-PAGE "ALBUM OF DESIGNS."

FRED W. MARTIN, Yacht Designer,

North Chicago, Ill., FORMERLY
 RACINE, WIS.

Youghiogheny River Coal Co.,

MINERS AND SHIPPERS OF



OCEAN MINE,
 YOUGHIOGHENY GAS
 AND STEAM COAL.

General Office: Erie, Pa., Long Distance 'Phone 409.

Shipping Docks: Ashtabula, O., Long Distance 'Phone 76.

Vessels fueled at all hours with Ocean coal only, by Steam
 Lighter. Car Dump or Derricks. Electric Light.

The Cuddy-Mullen Coal Co.

Miners and
 Shippers of

STEAM COAL

FUELING DEPARTMENT
 FACILITIES. * * *

CLEVELAND HARBOR.—Car Dumper; Eight Pockets, 1000 Tons Capacity; Lighter
 Steam Derricks.

DETROIT RIVER BRANCH.—Amherstburg; Four Pockets; Three Steam Derricks
 SANDWICH—Ten Pockets and Two Steam Derricks.

"SOO" RIVER BRANCH.—Two Docks, (Formerly known as the Anthony and Watson
 Docks,) Equipped with Pockets and Steam Derricks.

GOOD
 COAL.

COURTEOUS
 ATTENTION

QUICK
 DISPATCH.

General Offices, Perry-Payne Bldg., Cleveland, O.

W. Buschman & Co.

Boat Supplies,
 Furniture and Carpets.



214-216 Superior Street,

CLEVELAND, O.

Telephone, Main 1016.

The Chase Machine Co.

MACHINISTS, ENGINEERS, BLACKSMITHS.

MANUFACTURERS OF

Land and Marine Engines and Steam Pumps.

SOLE OWNERS AND MANUFACTURERS OF THE

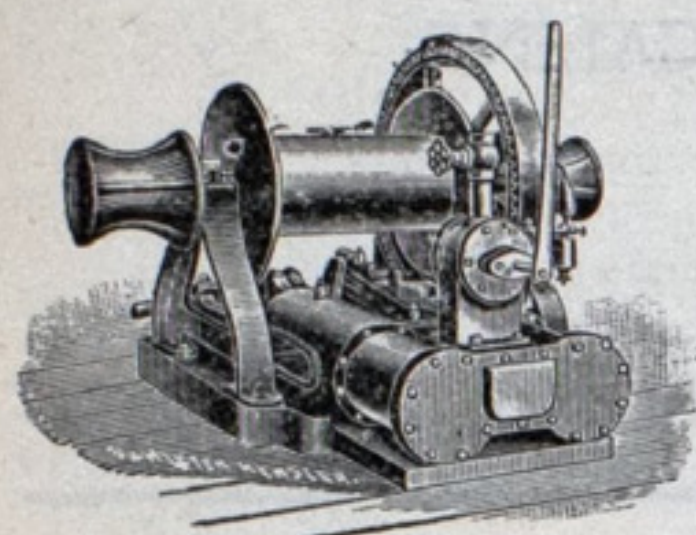
CHASE AUTOMATIC FOG WHISTLE MACHINE.

In use on nearly all Lake Steamers.

AGENTS FOR ASBESTOS STEAM, BOILER AND PIPE COVERING.

Telephone 994.

III Elm St., CLEVELAND, O.



Dock and Deck Hoists

ALL KINDS OF

Machinery and Friction Hoists.

Send for Prices
and Circulars.JACKSON & CHURCH,
Saginaw, Mich.No. 8
Beck Patent
Steam and
Hand Steering
Gear.BUILT BY
Pawling & Harnischfeger,
Milwaukee, Wis.Simplest,
Strongest
and most
Reliable.
Changed
from Steam
to Hand or
back by one
lever in less
than one
Second.

CHICAGO—BARRY'S—DULUTH.

DON'T FORGET THAT
Barry Bros.'

INDEPENDENT TUG LINE

Have a Wrecking Outfit. We have purchased the Grummond Wrecking Appliances and are prepared to offer our patrons good service.

Office 240 South Water Street.

TELEPHONE MAIN 273.

3 Long Whistles call our Tugs.

BARRY
Towing--Wrecking Co.

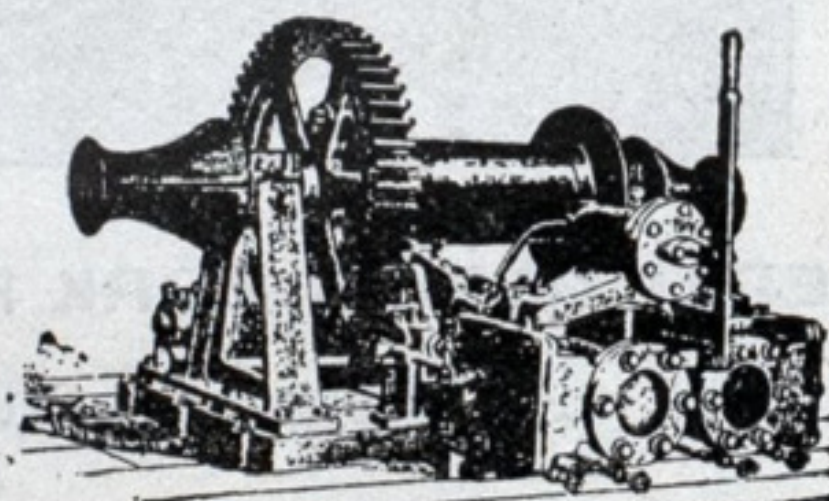
TUGS.

G. A. Tomlinson.
Industry.
Violet H. Raber.
Prodigy.

Office foot Fifth Avenue West.

TELEPHONE 544.

3 Long Whistles call our Tugs.



HOISTING ENGINES

• • We build them in all sizes from new and improved designs. Every engine thoroughly tested before leaving our shop, and guaranteed to be satisfactory in every case.

MARINE IRON CO.,

BAY CITY MICH.

FOR SALE.

Three Passenger Steamers; also
suitable for Fishing Tugs.

First and Second. Capacity 125 passengers, built of 2 in. oak, frame 4 x 6 in. oak, 61 ft. long, 14 ft. beam, 5 ft. and 7 ft. 6 in. deep, draught 3 ft. 10 in. and 4 ft. 10 in. respectively, 30 H. P. boiler, 25 H. P. engine. Built in 1893. Price \$1,500 each.

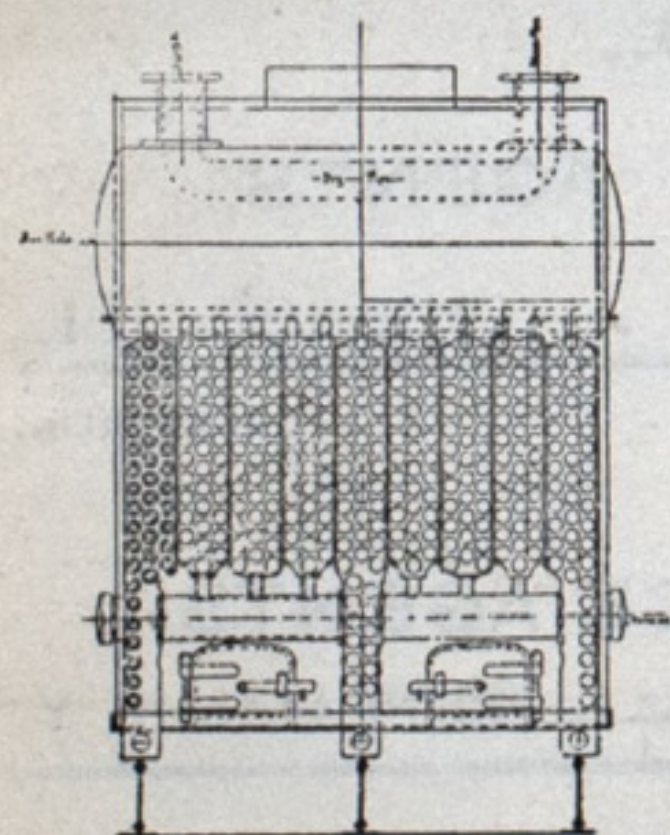
Third. Capacity 75 passengers, frame built of 2 x 4 in. white oak covered with pine sheathing, 45 ft. long, 10 ft. beam, 3 ft. 4 in. draught, 3 ft. 6 in. depth, 20 H. P. boiler, 15 H. P. engine. Price \$600. All in good running order.

Milwaukee Electric Launch Co.,

11 HATHAWAY BLDG.,
MILWAUKEE, WIS.

FOR SALE.

For sale cheap, tug good as new, only used part of two seasons. Built for fish tug, 11 x 45 ft., draws 5 ft. Will go outside in any kind of weather. Owner has no use for her and must have money. Address H. H., care of MARINE RECORD. 8-15



26 HANCOCK AVE., DETROIT, MICH., Feb. 9, 1897.
E. H. BRIDGES, Bay City, Mich.:
Dear Sir.—Replying to yours of the 9th, I have to say that I think the Flajole the best form of Water Tube Boiler made. The one I have seems a perfect steamer, and the question of durability seems the only one yet undecided, and that only time can tell. Yours truly,
R. J. CRAM.

The Flajole Sectional Water Tube Boiler.

Combines Small Space, Economy and Durability.
Easy of Access for Repairs.

JOHN A. FLAJOLE, Cor. 2d and Saginaw Sts., Bay City, Mich

J. H. OWEN, Pres.,
Chicago.F. H. VAN CLEVE, Sec.,
Escanaba.Capt. GEO. BARTLEY, Supt.,
Escanaba.

Escanaba Towing and Wrecking Co.

ESCANABA, MICH.

Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready

TUG MONARCH—Engine Compound, Cylinder 16 and 30 in. diameter, 30 in. stroke, steam pressure allowed 125 pounds. TUG DELTA—Cylinder 20 by 22, steam pressure allowed 105 pounds.
TUG OWEN—Cylinder 20 by 20, steam pressure allowed, 104 pounds.

CENTRIFUGAL PUMPS.

SEVEN AND FOURTEEN INCH SUCTION.

NEVERSINK CORK JACKET AND LIFE BELT.

Warranted 24 lb. Buoyancy and full Weight of Cork, as required by U. S. Inspectors. Consolidated Cork Life Preservers. Superior to all others. Rings Buoys and Fenders. SAFEST CHEAPEST. Approved and adopted by U. S. Board of Supervising Inspectors. Also adopted by the principal Ocean, Lake and River Steamer Lines as the only Reliable Life Preserver. Vessels and trade supplied. Send for Catalogue. Awarded four medals by World's Columbian Exposition.

METALLIC
and
WOODEN
LIFE
BOATS.

Metallic Life Rafts, Marine Drags.

Manufacturer of Woolsey's Patent Life Buoy, which is the lightest, cheapest and most compact Life Raft known. Send for illustrated catalogue. Get our prices before buying elsewhere.

D. KAHNWEILER, 437 Pearl St., New York City.

VESSEL SUPPLIES. TELEPHONE, MAIN 3411

D. C. DEEGAN,

Meats,
Groceries and
Provisions.

24 Rush Street.

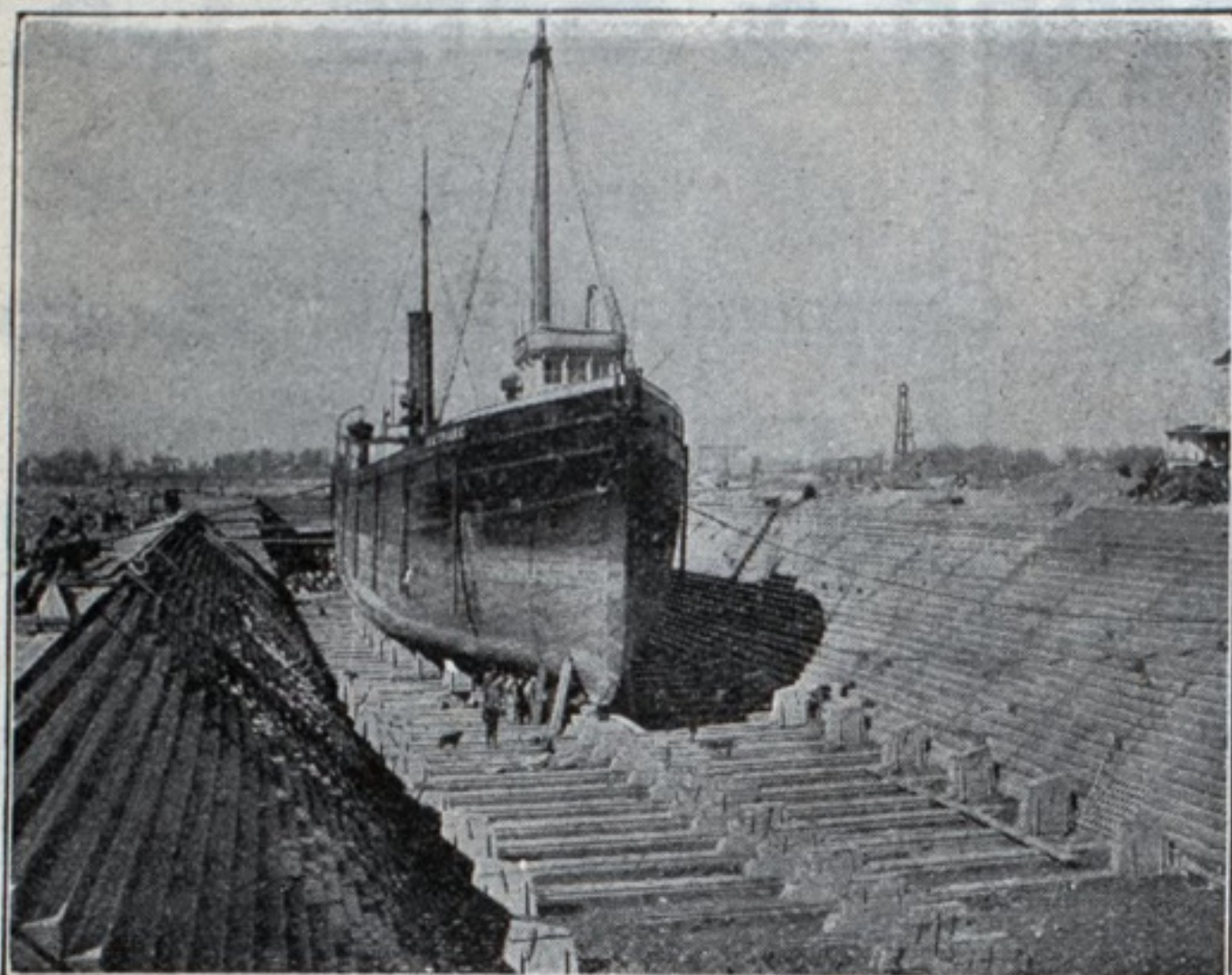
CHICAGO, ILL.

Capt. Samuel W. Gould,

265 MARCY AVE., CLEVELAND.

Gives instructions in Ocean Navigation and prepares candidates for the examinations for Master and Pilots' Licenses, before the Local Steamboat Inspectors.

TAKE WADE PARK OR PAYNE
AVE. CAR.



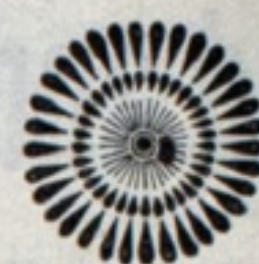
Craig Ship Building Co.

TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

Repairs to Metal and Wooden Ships a Specialty.

Metal
and **Wooden**
Ship Builders.



H. A. HAWGOOD, Pres't.
PHILIP MINCH, Vice-Pres't.

C. A. MORGAN, Gen'l Mang'r.

A. SMITH, Sec'y.
J. R. SPRANKLE, Treas.

The Cleveland Tug Company,

First-class Tugs,
Steam Pumps,
Divers, Hawseers,
Lifting Screws,
Etc., furnished
Promptly on
Orders by Tele-
graph or oth-
erwise.



Steamers when outside wanting our Tugs, blow one long whistle and as many short ones as they want tugs.

OPEN DAY and NIGHT.

Long Distance Telephone 125.

OFFICE 23 RIVER ST.

The "CINCINNATI"
Automatic Steam Steering Gear.
Simple, Powerful Machine.
Noiseless and Sure.
Send for Circular.

FRONTIER IRON WORKS, Detroit Mich.
Agents for the Lakes.

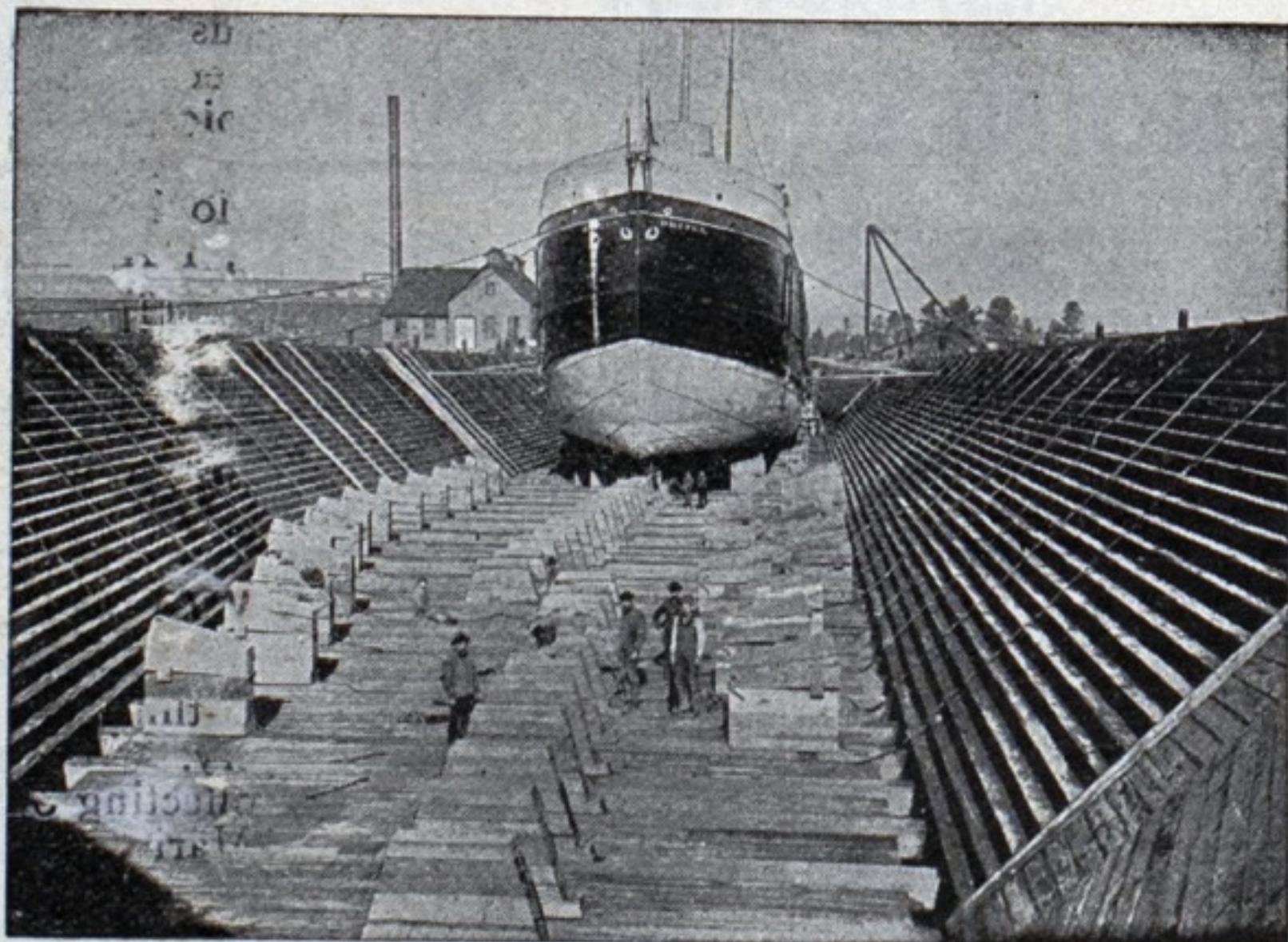
American Steel Barge Co.

STEEL AND METAL SHIPS

Of all Classes built on shortest possible notice at our yards at WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300-FOOT BOAT IN DOCK.

Plates and Material always on hand to repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK			
Length, Extreme	587 feet.	Entrance, Top	55 feet 9 in.
Breadth, Top	90 " 4 in.	Entrance, Bottom	50 "
Breadth, Bottom	52 "	Depth over Sills	18 "

LARGEST DRY-DOCK ON THE LAKES.

Prices for Repairs and Docking same as at Lower Lake Ports.

SUPERIOR, WIS.

A Number of Propeller Wheels in Stock at Dry-Dock.

A. Gilmore's Sons,

Dry-Docking,
Ship Building and
Repairing.

EAST IRONVILLE, - - - TOLEDO, O.

236 feet long, 55 feet wide at top and 37 feet wide at gate. Nine
AT OF DOCKING, Ten Cents per registered gross ton for ves-
sels over . Mill and Planer in connection with Dock.

'PHONE NO. 157.

Paint Your
Vessel with

Superior Graphite Paint

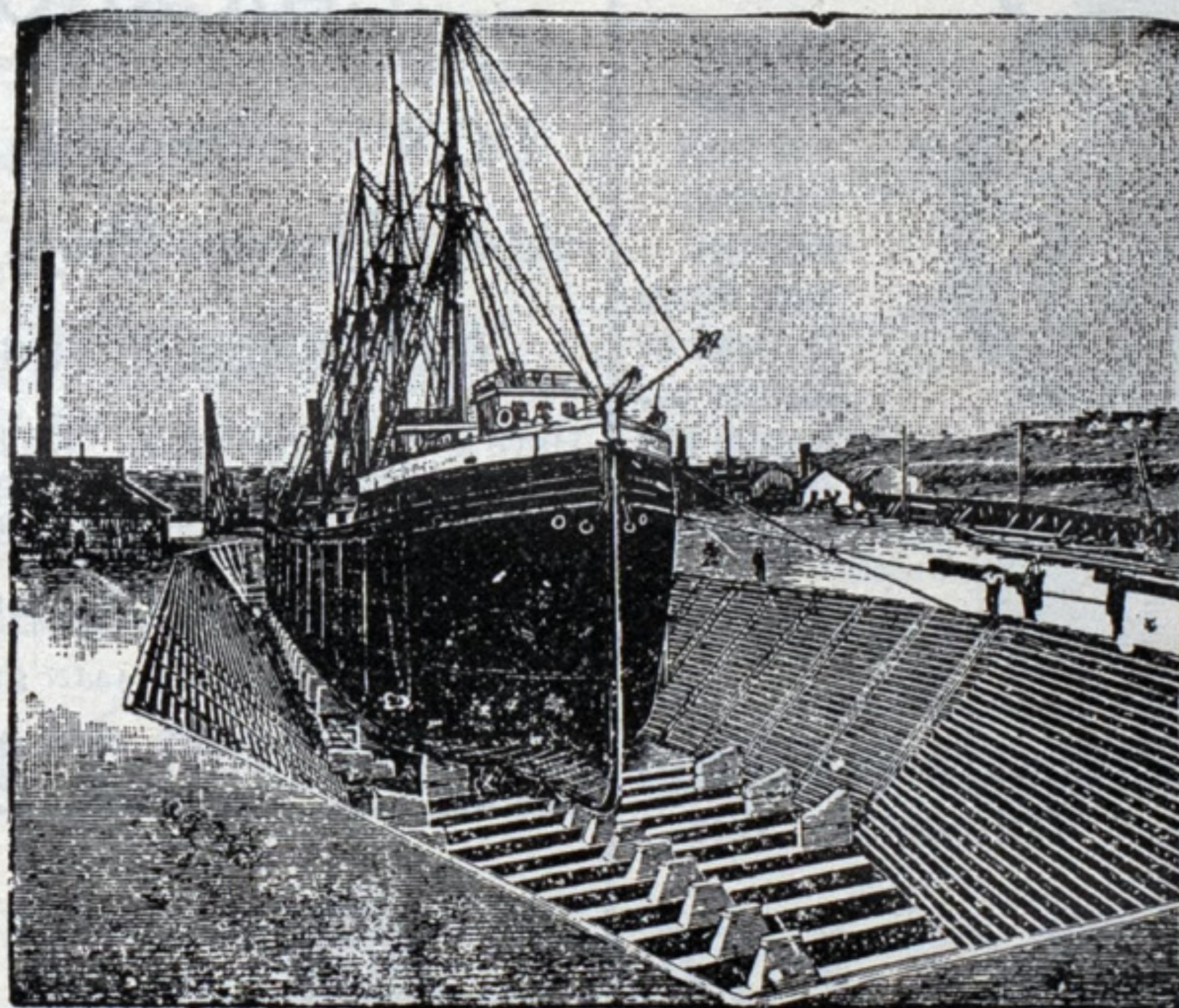
NO BLISTERING, CRACKING OR SCALING.

Made especially for Stacks, Decks, Sides, Hulls, and Water Compartments.
Strictly Anti-Rust, and most durable and economical.

DETROIT GRAPHITE MFG. CO., 542 River St., Detroit, Mich.
C. H. HOYT, Agent, 60 Gladstone St., CLEVELAND, O.

THE SHIP OWNERS DRY DOCK CO.

Largest
DOCK
YARD
on the
GREAT
LAKES.



Capacity
with
Two Docks
to Dock
the
Largest
Ships on
the Lakes.

GENERAL REPAIR WORK PROMPTLY ATTENDED TO.
Being equipped with Lucigen Lights we do work at night as well as day.
TELEPHONE 1635. Foot of Weddell Street, CLEVELAND, O.

C. A. MACDONALD & CO.,

GENERAL MARINE INSURANCE AGENTS,

Rialto Building.

CHICAGO, ILL.

JOHN GORDON.

J. H. KELLERAN.

H. L. CHAMBERLIN.

JOHN GORDON & CO.

VESSEL, FREIGHT AND INSURANCE AGENTS,

Room 1132 Guaranty Building.
Telephone, 1713 Seneca.

BUFFALO, N. Y.

THOMAS WILSON,

MANAGING OWNER WILSON'S TRANSIT LINE,

General Forwarder, Freight and Vessel Agent,

CLEVELAND, O.

JOHN MITCHELL.

JOHN F. WEDOW.

ALFRED MITCHELL.

MITCHELL & CO.,

VESSEL AND INSURANCE AGENTS,

Office Telephone, 767.
Residence John Mitchell, 'Phone 3506. 508-509-510 Perry-Payne Bldg. Cleveland, O.

C. R. JONES & CO.,

VESSEL AGENTS,

FIRE AND MARINE INSURANCE,

Nos. 501, 502 and 503 Perry-Payne Bldg.

CLEVELAND, O.